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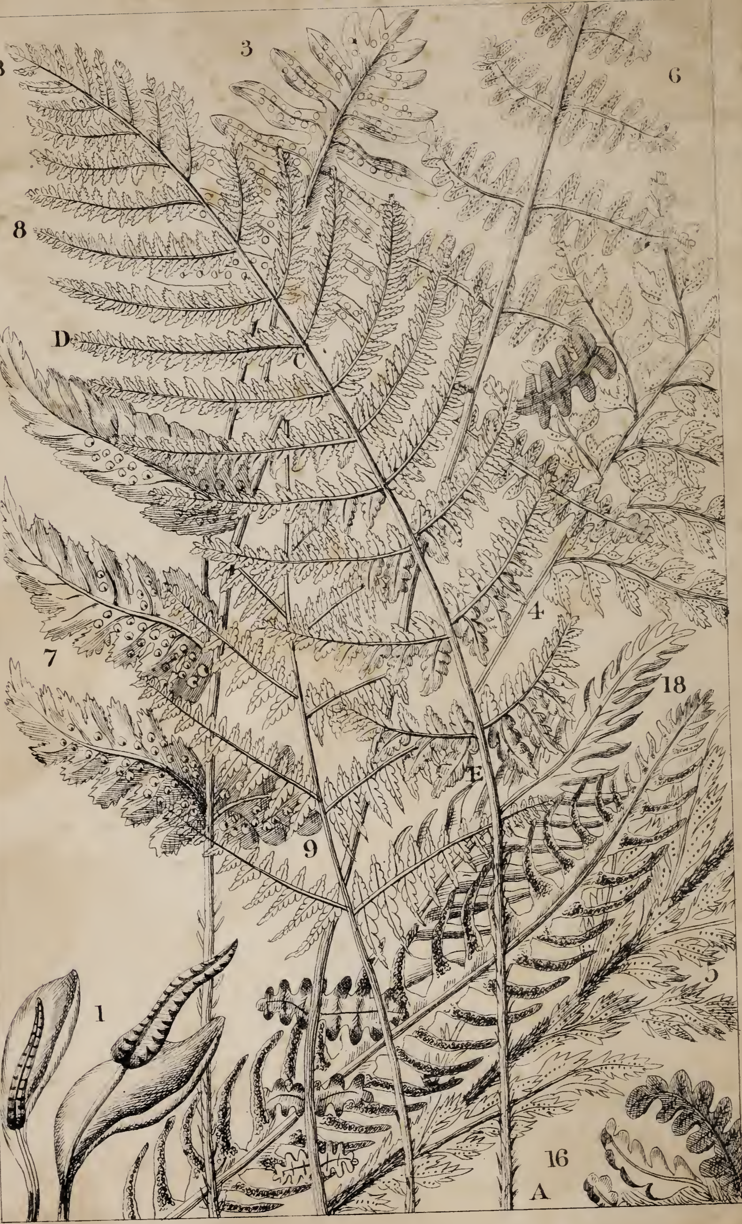
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THE

FERNS OF THE AXE

AND

ITS TRIBUTARIES;

ALSO OF

LYME, CHARMOUTH, AND NEIGHBOURING PARISHES,

WITH AN ACCOUNT OF THE FLOWER

LOBELIA URENS,

FOUND WILD NEAR AXMINSTER, AND NOWHERE ELSE IN
GREAT BRITAIN.

BY

THE REV. Z. J. EDWARDS, M.A.,

RECTOR OF COMBPYNE,

AND LATE FELLOW OF WADHAM COLLEGE, OXFORD.

Enlarged Edition. Illustrated.

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PREFACE.

The intention of this little work is, not to supply the public with any new information on the subject of Ferns, but, rather, to present in an intelligible and interesting form, what has been gathered from personal observation, and other sources, respecting these beautiful plants of the neighbourhood. Some may recognize a portion of what is written as having already appeared in a local newspaper. An endeavour is now made to express the matter more fully. The most simple language is used, with a view that not merely the scientific, but those who are in any way observant, may easily discover and admire some of nature's productions on our walls, woods, and hedge-banks. To make it locally interesting, the places are named where the rarer Ferns are found. Not every spot is mentioned, neither is it attempted to describe all the varieties. Sufficient, it is hoped, is said, to give an impetus for making fresh discoveries.

The author cannot refrain from giving his best thanks to the many kind friends who have helped him in procuring illustrations and specimens, and in various other ways; wherever he has visited, he has met with a kindly feeling and a friendly reception; whether strangers or acquaintances, rich or poor, all have endeavoured to facilitate his labours, and he sincerely hopes that they will be amused, if not instructed, by the volume now presented to their notice.

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PREFACE TO SECOND EDITION.

As the publishers' store is exhausted, a new edition of the "Ferns of the Axe" now appears. In which is not only one more species inserted, but a large number of varieties not mentioned before, of which there are eleven never previously known as growing in Great Britain, and which have been named by the great Fern authorities Mr. Moore or Mr. Wollaston. Some of these varieties are rare. Others may easily be discovered by a discriminating eye. Let none be disconcerted if they do not light on these varieties, of which only a single specimen has been found in one locality. Let them rather be encouraged to hope that they may meet with *some rose in the desert, some jewel in the mine.* The student of nature will find himself amply repaid, who searches our woods and lanes, our lovely nooks and corners. There our Ferns thrive, and are intermixed with our beautiful wild flowers, that rejoice in the shade. Sometimes, too, they are freshened and luxuriate from some dripping stream that feeds them with that moisture in which they so much delight. Neither let the damp and neglected walls and bridges be disregarded, for in such a station may be espied some curious and elegant forms of the Hartstongue and Spleenworts. On some of our dry hedge-banks, too, will be found some varieties of the Prickly Ferns, in which this neighbourhood so richly abounds. The only soil which we have unsuitable to the growth of our favourite plants is the stiff unyielding clay, and even there may be sometimes found the Northern Hard Fern. In the hope that our residents and visitors may have some additional incentive to study nature's works, and to look upwards to Him who is the Great and Skilful Artist of all, this Second Edition is sent forth.

THE REGION OF THE AXE.

It was our original intention to have confined our researches to "The Ferns of the Axe"—the Ferns of the parishes through which the Axe and its tributaries flow—but the romantic dells of Uplyme, the bold hills overhanging Lyme, Charmouth, with the distant view of the majestic Golden-cap, and the wild scenery around Monkton Wylde and Wootton Fitzpaine, cannot be passed over by the lover of nature's works. The plants are so choice and the neighbourhood so inviting, that, though our stream will not water these spots, we must consider Lyme, Charmouth, Uplyme, Monkton Wylde, and Wootton Fitzpaine, as belonging to the region of the Axe. Neither are the various parishes, through which our river and its branches and streamlets flow, devoid of great beauty. The fine open bay of Seaton, with Haven cliff on the one side and the perpendicular white chalk rocks of Beer on the other, are points of great attraction. As we advance onward, the view of Colyton Church, with its noble tower raising its head in a lovely vale, arrest the eye and charm the beholder. As the stream winds its bending course further still, the rich, luxuriant meadows near Axminster, with the prospect of Cloakham house, and the Dalwood and Stockland hills, seem to tell the traveller a tale—that he is treading on enchanted ground. Two miles to the east is Trinity hill, whence we behold the clear blue waters of the sea, the river gliding through the vale, a diversified prospect of hills and dales, with a distant and, sometimes, clear view of Heytor in the forest of Dartmoor. As we reach nearer the source of the Axe, we pass by Forde Abbey, known for its splendid tapestry and pleasant and agreeable situation. Wending our course onward, we have on the right bank the parish of Crewkerne, a parish to be admired for its noble Church nestling among the trees, however much we may regret that it is not so favourable for promoting the growth of our favourite plants. At the very source itself we enter the parish of Beaminster, lying in the midst of beauteous eminences and sloping hills, adorned with flowers and Ferns and many a rural treasure. On the tributaries we have Cricket House, the seat of Lord Bridport, with its well-wooded and undulating grounds, the ancient town of Chard, said to have been built by Cerdic, king of the West Saxons, and the pleasant retreats of Farway, Offwell, and sundry other pretty villages. On every side, all is deeply interesting. From the village and bounds of Charmouth to the utmost point of Stockland hill; from the beach of the little fishing village of Beer to Axe Knoller, the source of the stream; whether we turn to the right hand or to the left, our eyes are continually feasted with the loveliest scenery. The woods, the hills, the vales diversify the prospect and pour forth in richest profusion the choicest productions of a gracious God.

THE FERNS OF THE AXE.

Ferns generally delight in a moist and humid clime. Though few of ours grow by the river's side, yet the same liquid element that feeds the water of the one, gives life to the other. There is scarcely a bog, or dripping wood, or damp shady lane, where traces of the Fern tribe are not to be found throughout this interesting neighbourhood. In many a neglected wall, or bridge, or church, or crevice of a rock, the humbler of these plants are seen creeping with their rolled-in buds, and silently demand our praise and observation. Nay, the very works of art cannot expel these dear children of nature. As certain of the feathered tribe have left their natural haunts, and thronged to the habitations of men, so certain of these Ferns have deserted their original residence among the rocks, and are scarcely ever seen except upon buildings and walls, the artificial work of man. The river Axe and its tributaries pass through three Counties and forty Parishes. Respecting these we shall endeavour to point out the habitats of the rarer plants. Stiff clay soils and dry situations are generally unfavourable and uncongenial: their favourite resort is in abundant moisture and shade. The Fern Trees of the Tropics are found in dense and wet woods. Our most luxuriant specimens are where the sun does not scorch, and the ground is saturated with moisture, and the air is damp and misty. If Ferns exist at all in dry regions, they are so stunted and changed, that they could hardly be supposed to be identical with those that appear so rich and luxuriant. Brake and Moonwort are an exception to this rule. The former, however, is far more stately and exalted in the dense and shaded wood, than in the open down.

The parishes are—In Devonshire—Axminster, Axmouth, Colyton, Combpyne, Cotleigh, Dalwood, Farway, Kilmington, Membury, Musbury, Northleigh, Offwell, Stockland, Southleigh, Seaton and Beer, Uplyme, Shute, Widworthy, Yarcombe. In Dorset—Beaminster, Broadwinsor, Burstock, Chardstock, Charmouth, Cheddington, Hawkchurch, Lyme, Monkton Wylde, Mosterton, Wambrook, Wootton Fitzpaine. In Somerset — Buckland St. Mary, Chaffcombe, Chard, Combe, Crewkerne, Otterford, Seaborough, Wayford, Whitestaunton, Winsham.

HISTORY OF FERNS.

> "Non tamen ista filix ullo mansuescit aratro."—Pers. Sat. 4, v. 41.
> That fern however is not improved by any plough.

Theophrastus, a Greek philosopher of the third century before Christ, praises their medicinal properties, and Dioscorides, a physician who flourished in the reign of Nero, and whose works were referred to as the fountain-head of all authority on the subject of botany and the virtues of plants for sixteen centuries, speaks of the Male Fern or Brake, (pteris) the Female Fern, (thelypteris) probably the Common Polypody, (dryopteris) and several others. Both these authors wrote in the Greek language, and many of their works are still extant. The Greeks called Fern pteris on account of its plumose or feathery appearance. Theocritus, the pastoral poet, also has this allusion.

> "But if you too come, you shall walk here on tender fern."—
> Idyll 5, v. 55.

The Romans, too, were acquainted with fern. The Latin name is said to be derived from (filum) a thread, because many species are cut and divided most elegantly into thread-like portions. Three leading Roman poets* are loud in their invectives against one particular species, because its underground creeping stem is troublesome.

> "Et filicem curvis invisam pascit aratris."—Vir. Georg. 1. 2. v. 189.
> The soil feeds the fern hateful to crooked ploughs.

An expression, however, in Cicero, the great Roman orator, *(pateræ filicatæ)*, "*bowls adorned with fern leaves*," shows that the ancients, like ourselves, considered these plants to be highly ornamental. In our own country, the earliest writer of any celebrity, who speaks of the properties and species of Ferns, is Gerarde, the Herbalist. He lived in the reign of Queen Elizabeth, and enjoyed the patronage and support of Lord Burghley. In his work there are some curious and striking remarks on the virtues of these plants. Parkinson, who lived in the unfortunate reign of Charles the First, took a more enlarged view of natural history, gave a fuller description of plants, and did not confine himself to their medical uses and properties. He severely criticised the ridiculous stories about Ferns. Of Moonwort he says "Some Alchymists also in former times have wonderfull extolled it to condensate or convert quicksilver into pure silver, but all these tales were but the breath of idle-headed persons, which divers to their cost and losse of time have found true, and now are vanished away with them like the air or smoke therein." The greatest and most distinguished of our countrymen, who turned his attention to this subject and to plants generally, is Ray. He was the son of a blacksmith at Black Notley, near Braintree, in Essex. He was educated at Cambridge, where he greatly distinguished himself. He first brought into notice that which is called the natural system in the vegetable kingdom, and gave the classical name to many of our English Ferns. He lived in the reign of Charles the Second, and was a Nonconformist. At the present day Moore, Hooker, and Newman take the lead.

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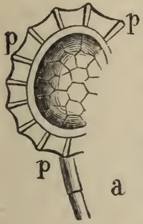
* Virgil, Horace, and Persius.

DESCRIPTION OF A FERN.

A Fern is the highest order of not-flowering plants, and has fibrous vascular tissue. The leaf or leafy part is called a frond. Plate I. B to E. What is below the frond, is the stalk (stipes) Plate I. E to A. It has fibrous roots, a creeping underground-stem (rhizome) or an upright trunk or stem (caudex). The stalk and sometimes the mid-rib or mid-stem (rachis) of the frond is for the most part covered with scales. Vide Plate I. fig. E to A. Though a Fern has no flower, it has clusters of spores (seeds) in thin bags invisible to the human eye. In most cases these bags have a jointed elastic ring usually incomplete, which bursts open when the spores are ripe, and allows them to escape. In the representation here given the part *p p p* is the elastic ring, and the rest of the figure the spore bag. This, too, cannot be seen without a microscope. Most species have the fruit on the back of the leaves, and have their buds rolled in (circinate) before the fronds are expanded. Small as the bags are, and unperceived by the human eye, the spores or seeds contained within them are still more minute.



> "The seeds of fern which by prolific heat,
> Cheered and unfolded form a plant so great,
> Are less a thousand times than what the eye
> Can unassisted by the tube descry."—Blakemore.

The organs of reproduction are generally called spores, because proper seeds have an embryo root and one or two leaves, according as it is an Endogen or Exogen. If the seed be sown, as, for instance, the bean, with the embryo root upward and embryo leaves downward, the seed will turn itself round and force the leaves upward and the root downwards. Not so the spores. Fern seed was said by the superstitious of yore to render persons invisible, if gathered on the eve of St. John's day.

"We steal as in a castle cocksure,
We have the receipt of fern seed,
We walk invisible.
Nay, by my faith, I think you are more beholden
To the night than to fern seed for your walking invisible."
Shakspeare, Henry 4, Act 2, Scene 1.

There is also a great difference between the veins on the leaflets of Ferns and those on the leaves of the great orders of flowering plants. There generally is a mid-vein, from which issue veins on either side, that are either undivided or divided into two, three, or four lines, with the fructification on one or more of these. Many of the Ferns found in the coal formations are named according to the division and direction of the veins. The fronds are rarely undivided, as the Hartstongue. Plate II, fig. 17. What, indeed, constitutes the chief beauty and elegance of this part of the vegetable world, is the peculiarly chaste and striking manner in which the various parts of a frond are cut and severed. Not the finest tool of the most skilful mechanic could perform such exquisite workmanship. No rich colour, as in the rose and camelia, no sweet perfume, as in the violet: it is the matchless distribution of the various parts that is so attractive and ornamental. Some Ferns have the fronds deeply divided, but not to the mid-rib or rachis as the common Polypody, Plate I, fig. 3. Others are divided to the rachis and have distinct leaflets on each side, as the Maidenhair Spleenwort, Plate II, fig. 12. These are said to be pinnate and the frond is called a pinna. If on either side of the rachis, we have many pinnæ, as Plate II, fig. 11, the Fern is said to be bipinnate; and, if instead of mere leaflets on such a pinna, there are some little pinnæ or branchlets, as Plate I, fig. 8,* then it is said to be tripinnate. If, as in Plate I, fig. 6, the branches are deeply divided, but not to the mid-rib, then the frond is said to be nearly bipinnate. The elegance is also increased by little incisions or cuts on the edges of the leaflets, some resembling those of a saw (serrate), some bluntly notched, and others more rounded. A few have little bristles here and there, as in the Prickly Fern, Plate I, fig. 4. The shape of the leaflet should be attended to, as this gives a character to the plant. They are either egg-shaped, as the Adders-tongue, or lance-shaped, as in the Black-stalked Spleenwort, or oblong as the Mountain Fern, Plate I, fig. 6, or nearly round, as the Maidenhair Spleenwort, Plate II, fig. 12, or diamond-shaped, as the Wall Rue Spleenwort, Plate II, fig. 14, or strap-shaped, as the Hartstongue generally is. Sometimes they have a little lobe or projection sticking out on one side, as the Prickly Fern, Plate I, fig. 4. There is one more distinctive mark to be noticed, and that is the form of the entire frond. We should notice whether it be triangular, lance-shaped, linear, (*i.e.* like a line) &c. Most of our Ferns are mere herbs, scarcely any can be called bushes. The highest are rarely ten feet. Tree Ferns are found in the Tropics and South Temperate Zone, while in the North Temperate and Frigid they are only herbaceous. Their geographical distribution varies. In islands it is great. In Jamaica 1 to 9, Iceland 1 to 18, Scotland 1 to 31. On the Continent it is less. In France 1 to 63, Portugal 1 to 116, Egypt 1 to 971.

CLASSIFICATION.

Help to the Discovery of Ferns.

If we discover a plant which has its buds rolled in or coiled together, and with dusty rust-red fruit,† it is most probably a Fern. When we wish to search it out, we must particularly observe where the fructification lies. If the clusters of fruit are on a spike separate from, but attached to the leaf or frond, it is one of the Tongueworts (*Ophioglossaceæ*). If the clusters are in a large panicle at the ends of the fronds or of portions of the fronds, it is one of the Osmunds (*Osmundaceæ*). If on the back of the leaflets of a frond with or without a cover, it is one of the Polypods (*Polypodiaceæ*). Thus we discover the three Sub-orders or tribes of Ferns.

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* Particularly notice the lowest pinnæ. † In old plants it is sometimes black.

I. Tongueworts. *Ophioglossaceæ.* Clusters on a spike separate from, but attached to the frond. There is no elastic ring to the not-transparent bags of spores, neither are the buds of the plants rolled in (circinate).

II. Osmunds. *Osmundaceæ.* Clusters at the ends of the fronds or of portions of the frond. Bags of spores have frequently a lid-like ring. Buds rolled in.

III. Polypods. *Polypodiaceæ.* Clusters on the back of the frond* with or without a cover. Bags of spores with a jointed elastic ring. Buds rolled in.

We will next proceed to consider the genus and species of each Sub-order. If we meet with a plant having a leaf and a spike undivided, and growing in wet clay or loamy fields, it is most probably an Adderstongue, *Ophioglossum*, but if we meet with one having a pinnatifid leaf and a clustered spike on a dry sandy or peaty soil, we should inspect it and see whether it be the Moonwort, *Botrychium*. Thus we determine the genera of the first Sub-order.

I. TONGUEWORTS. *Ophioglossaceæ.*

1. Adderstongues. *Ophioglossa.* Clusters of fruit on a two-rowed spike attached to an undivided frond.

2. Clustered Tongueworts. *Botrychia.* Fructification on a clustered spike with a deeply divided frond.

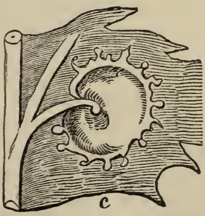
* Some genera have the clusters on a columnar receptacle arising from their side veins. These not found here.

If we observe a Fern-like plant with the rust-red fruit growing at the ends of the fronds, and not on the back of the leaflets, and without an elastic ring to the bags of spores, we may take it for granted that this is an Osmunda, the only British genus of the second Sub-order. Hence we proceed.

II. OSMUNDS. *Osmundaceæ.*

Osmunda. Fruit growing on a clustered branch at the end of a frond. Bags of spores without an elastic ring.

We now come to the Third Sub-order, which takes in all the other British, and by far the greater part of the Ferns found in the whole world, from the Tropics to the Arctic and Antarctic regions. They vary exceedingly from the largest tree Ferns to the smallest species scarcely perceptible to the eye. To facilitate the discovery of these plants, our British Polypods are divided into four families. In most species the clusters of fruit have a thin white or very light green cover (*indusium*). The first family have no covers and are called Polypodies. *Polypodieæ.* The second have a roundish cover* and are designated Shieldworts. *Aspidieæ.* The third have a linear one, as appears in the Hartstongue, Plate II, fig. 17, not parallel to the mid-rib, and bear the name of Spleens. *Asplenieæ.* The fourth have a linear cover, either parallel to the edge of the leaflet, or formed by that edge bent back and rolled in. These are Maidenworts. *Adianteæ.* Thus we have four families of Polypods. The names of these, and their distinctive marks, and their respective genera, are



* This etching is magnified, as the covers in Plate I, fig. 7, are rather less than the natural size.

III. POLYPODS. POLYPODIACEÆ.

FAMILY I.

I. POLYPODIES. *Polypodieæ.* Covers none. Clusters seated on the back of the side-veins.

1 *Genus.*

Polypody. *Polypodium.* Clusters round on the middle of the underside of the lobes or leaflets of the frond.

FAMILY II.

II. SHIELDWORTS. *Aspidieæ.* Clusters round. Covers roundish, not attached by the outer edge.

2 *Genera.*

1. Shield Ferns. *Lastreæ.* Covers roundish or kidney-shaped, having a slit in it, and attached by the inmost point of that slit to the back of the side-vein. Veins distinct and separate after leaving the mid-rib. The best type of this genus is the Male Fern. The cover of etching C. is that of this genus.
2. Prickly Ferns. *Polysticha.* Covers round, attached by the centre. The bristles on the edges of the leaflets are a leading character of this genus.

FAMILY III.

III. SPLEENS. *Asplenieæ.* Clusters of fruit linear or oblong, or rarely roundish.† Covers linear,‡ but not parallel to the edge of the leaflet, placed on the sides of the veins.

4 *Genera.*

1. Lady Ferns. *Athyria.* Clusters oblong, kidney-shaped. Covers crescent-shaped, opening towards the mid-rib of the leaflets. The detached edge fringed. The clusters and covers of this genus greatly vary, sometimes they appear nearly round, at other times almost a straight line. The covers are almost always *more or less crescent-shaped.*
2. Spleenworts. *Asplenia.* Clusters linear, straight. Covers extended in a long straight line, and opening towards

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† In one variety of Lady Fern this is the case.
‡ Not always a straight but sometimes a curved line.

the mid-rib. The plants of this genus have generally a stiff form and a polished stalk.

3. Scaly Spleenworts. *Ceterach.* Clusters linear, straight. Covers narrow, upright on each branch of side-veins. Side-veins unite and form a net-work. Back of leaflets enveloped in chaffy scales.

4. Hartstongue. *Scolopendrium.* Clusters and covers in pairs, one seated on the upper and the other on the lower branch of each side-vein, and opening to face each other. Plate II, fig. 17.

FAMILY IV.

IV. MAIDENWORTS. *Adianteæ.* Cover linear, either parallel to the edge of the leaflets, or formed by their bent-back edges.

2 *Genera.*

1. Hard Ferns. *Blechna.* Bags of spores lying in a long straight line. Side-veins of fruit-bearing fronds joined by a line somewhat parallel to the mid-rib. The fructification lies between these parallel lines. This is most distinctly seen when the specimen is sparingly fruited.

Brake. *Pteris.* Bags of spores in a long straight line covered by the bent-back and rolled-in edge of the leaflets.

I.

TONGUEWORTS. OPHIOGLOSSACEÆ.

These are the least resembling Ferns of the three British Sub-orders. We have placed them first on the list, as being the most natural transition from the flowering plants. In many respects they differ from the others. The rusty fruit is not on the back of the frond, but on a separate spike merely attached to the base. The buds do not roll in. The veins are not even distinct in the Adderstongues, but mix one with another, as in a large portion of the flowering plants (the Exogens.) They also do not grow in woods or shady hedge-banks, or walls, or rocks, but are almost always to be found in the open fields or downs. Throughout the world this is a small Sub-order. We have but one species to each genus.

I. Adderstongues. Ophioglossa.

Plate I, fig. 1.

> "For them, that are with newts, or snakes or adders stung,
> He seeking out an herb that's called Adderstongue,
> As nature it ordained its own like hurt to cure
> And sportive did herself to niceties inure."

Adderstongue. *Ophioglossum vulgatum*. The leaf of this plant, for we can hardly call it a frond, is egg-shaped, net-veined. It has a pale green colour, from four to ten inches high. The spike on which the fructification lies, issues from the sheathing part of the leaf, and is generally of the same height, sometimes much higher. The fruit-bearing part is generally rather shorter than the other part of the spike beneath. When it is ripe, it appears notched on each side, bearing some resemblance to the teeth of a blunt saw. We almost always find it growing in stiff and badly drained clay fields. Cultivation will diminish, but not altogether exterminate it. A friend informs us, that "in some fields to the north of Wootton, a village near

Charmouth, the Adderstongue grows so plentifully, as to give them a peculiar shade." Seldom does the fruit appear on the spike, through the ruthless hand of the mower, who befriends not the student of nature's works.

Our attention was directed to this plant by a "clever woman," who pronounced it the component part of one of the best of ointments. An old man some time since died in Axminster Union House, who, in by-gone days, had, in a great measure, supported himself by itinerating in various parts of Somersetshire for the purpose of vending an ointment of which this is a constituent part. It was pronounced highly beneficial for certain diseases of cattle. When in a dying state, he gave the receipt to another pauper, who seems to have gained a maintenance from a medicine composed of this wonderful herb, as he has discontinued from that time being a constant inmate of the Workhouse. The old poet, whose verses we have quoted, pronounces this a sovereign remedy against Adder's poison. We have yet to learn from the faculty, whether this be an undoubted fact. We know for a certainty that some of our farriers have many fronds and spikes gathered every spring, and use it for a specific in the diseases of cattle, and the poor creatures recover. Whether they would get rid of their ailments without this restorative, we will not presume to determine.

This is no easy plant to cultivate. Care must be taken not to remove the surrounding weeds or to cut the roots, or in any way to expose them. It must be placed in a stiff loam or clay, and be well supplied with moisture.

This Fern is found in great abundance in the months of May and June.

The localities of this Fern are—

Axminster; in fields near Evil Lane, Lodge Farm, Greatwood, and near Wyke.

*Axmouth; in various pasture fields.

Chard; in meadows between the Reservoir and the Crewkerne road.

* Chardstock; fields near the base of Tytherleigh hill.

Charmouth; fields near the pathway to Wootton.

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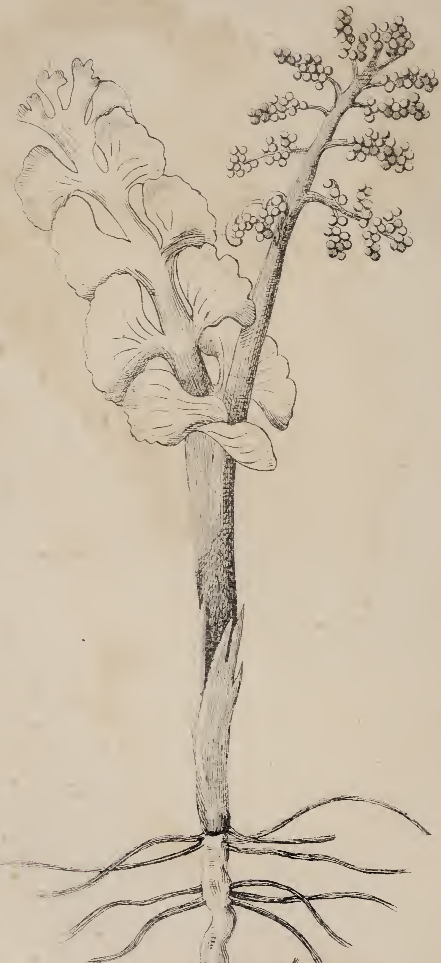
* The author has not visited the places marked by an asterisk, but he has reliable information that the Ferns may be found, or have been found, in that situation.

*Churchstanton; Burnworthy.
*Cotleigh; in various fields.
Musbury; Tripet's Marsh.
*Otterford; fields above Whatley lime quarries.
*Southleigh; fields near Wiscombe Park.



III

2. CLUSTERED TONGUEWORTS. *Botrychia.*

Plate III.

> "The first light night, when the new moon set,
> When all was doffe and mirk,
> We saddled our nags with the moon fern leaf,
> And rode from Kilmenin Kirk."

Moonwort. *Botrychium lunatum.* The frond is divided into bluntly notched segments, resembling a fan or a half-moon. The segments or leaflets have no mid-vein. The veins issue from the base of the leaflets, and frequently divide into branches above. Its height is from three to ten inches. The bags of spores on the clustered spike are quite distinct. There are generally as many branches on each side of the spike, as there are leaflets on each side of the frond. The stalk of the spike is about as long as the branched part. There are from three to seven pairs of leaflets. The stalk is smooth and hollow, and nearly as long as the frond and fruit-bearing spike. The plant rises up every year and dies before winter. It has a truly fibrous root, which, as in the case of the preceding species, is very different from every other Fern. There is a sheath-like scale to the stem, more like that of the Horsetails *(Equiseta)* than of the Ferns.

Great medicinal virtues are ascribed in olden times to Ferns. As the divisions of this have a resemblance to certain phases of the moon, and as that satellite of the earth was considered to have great influence on human affairs, the superstitious and credulous were wont to gather it by moonlight. In the days of witchcraft and wizards, those who dealt in the magic arts would, doubtless, be seen searching for this *Moon Fern* by *moonlight*, as they considered the herb would then be more potent, and its wonderful virtues enhanced. Not only did such persons endeavour to deceive others, but were themselves deceived into a belief, that strange things were brought about by peculiar plants picked at the *right time.* In this enlightened age we have ourselves been told, that if we wish to hoard apples, we must be sure to take them off the tree at the rise of the moon. Parkinson says "It hath been formerly related by impostors and false knaves, and is yet believed by many, that it will loosen locks, fetters, and shoes from those horses' feete that goe in the places where it groweth, and have been so audacious to contest with those that have contradicted them, that they have both known and seen it to do so. But what observation soever such persons doe make, it is all but false suggestions and mere lyes." Jacobus de Manliis relates "Some of the moderns have said, that in St. John's night some go to the place where the Fern rises and there stand for three hours and say that within that time the Fern bears flower after the seed. God knows better. *Deus melius scit.*" We do not apprehend that any medicinal virtue is attached to it at the present day.

This is not a very conspicuous Fern, and is generally distributed throughout Great Britain, though rather local. It generally grows in *dry* open heaths and elevated pastures, where the soil is either sand or peat. The same position is unfavourable for other Ferns except Brake. Moonwort is rather difficult to be cultivated. Some have considered it a parasite, attached to grass roots. Care should therefore be taken not to separate it from the surrounding roots. It should also be planted before it begins to raise its fronds, and not be placed in any rich mould. Too much moisture or drought is alike to be guarded against. The most likely periods of the year for finding this plant are the months of May, June, and July. This Fern may probably be met with on Colyton, Stockland, and our other high hills, but

The known localities of this Fern are—

Axminster; New Park.

*Hawkchurch; south of Fishpond bottom, near Lambert's Castle.

*Southleigh; Castle Down near Wiscombe Park.

II.

OSMUNDS. OSMUNDACEÆ.

If we judge merely by the ordinary appearance of this Sub-order, we should feel satisfied that all plants ranged under this head were true Ferns. The curled-in buds, the divided fronds, the rust-red summits of the branches seem to denote such to be the case. There is, however, one character yet wanting, and that is the elastic ring which encircles the bags of spores. When placed under a miscroscope, this cannot be seen, or if visible, it only resembles a little lid, and does not run round the middle of the bag. These are commonly called Flowering Ferns, not because they have true flowers, but because their fructification is conspicuous from being placed on the branched extremities, and not on the back of the frond. This, as well as the preceding, is a very small Sub-order in every country, and we have only one genus, and one species of that genus.

This is—

1. Flowering Ferns. *Osmunda.*

Fruit in clusters. Buds rolled in. No vestige of an elastic ring to the bags of spores.

Plate II, fig. 2.

"Many such there are,
Fair ferns and flowers, and chiefly that tall fern
So stately, of the Queen Osmunda named,
Plant lovelier in its own retired abode,
On Grasmeres beach, than Naiad by the side
Of Grecian brook, or Lady of the Mere,
Sole sitting by the shores of old romance."—Wordsworth.

Royal Flowering Fern. *Osmunda Regalis.* This gigantic Fern luxuriates in great profusion in Higher Beaver, and the Batches, in the parish of Axminster; in the dells of the parish of Uplyme, especially on Hole Common; and in a boggy wood close to Ridge, in the parish of Stockland. It is found raising its head to the height of seven or eight feet, and, with its splendid foliage, and its rusty-red spikes of fruit on the summit of its stalk, cannot fail to attract the admiration of every lover of nature. "*Osmund*" is derived from the Saxon word *mund*, signifying *strength*. The caudex or stump, when cut through, has a whitish centre or core, called by old Gerarde in his "Herbal" the heart of Osmund the waterman. One of the boatmen told Newman that when Sir Walter Scott visited the lakes of Killarney, and observed this Fern fringing the river between the lakes, the Baronet, who had scarcely before uttered a syllable in praise of the scenery, exclaimed, "This is worth coming to see."

The foliage of this plant has some resemblance to the leaves of the ash tree. The pinnæ are *opposite* each other, and furnished with distinct leaflets, which are *not opposite, but alternate*. The leaflets are generally oblong, though *sometimes* the lower and younger ones are lobed at the base, and the edges are serrated. The plant, in its early stage, has a reddish cast, and seldom appears until the frosts have ceased. The root-stock (caudex) from whence the fronds arise, is often one or two feet above the surface of the ground, which gives it the appearance of a Fern tree. The stalk is woody, as long as the frond itself. The side-veins of the leaflets of the barren fronds vary from those of the fertile ones. The former fork near the mid-rib, and the higher or both of these veins fork a second time. In the fertile fronds there issue from the mid-rib on each side lateral veins, which do not divide, nor reach the margin. The roots are extremely difficult to eradicate, and we have found that we need the help of a sturdy labourer with his spade and pickaxe to extract this firmly seated plant. The stiff spongy soil seems to resist the efforts of the amateur, and requires a powerful arm to ensure success in procuring a thoroughly good specimen for the Fernery. The fructification at first lies compact and close together. When bright summer comes and the nipping frosts have passed away, then we see the red branches expanding, and the Flowering Fern in all its glory. Even a careless observer cannot fail to notice how much larger and grander are the leaflets of this than any other Fern.

This plant delights in bogs and wet places. They succeed best in its cultivation, who plant it on the brink of pools and streams. This has been done very successfully by the Copleston family at Offwell, who have ornamented their fish ponds and brooks with this handsome Fern. It was taken from some neighbouring swamp, where it flourished in great luxuriance. It will also thrive in gardens and plantations if well supplied with peat or bog earth, and furnished with abundance of moisture. Though it grows in open fields in wet places, we should recommend a shady situation, if placed in a rather dry position. A large sod of earth should be taken when we transplant it from its native haunt.

Various fables have been circulated respecting this plant. There is a story, that when the Danes used to make inroads into Britain, Osmund was a waterman at Loch Tyne. He had a fair and lovely daughter, and a fond and affectionate wife. When tidings reached him that a horde of these ruthless intruders were approaching his humble residence, he was at first perplexed what to do. Soon he determined to ferry his partner and child across the sea to a small island and hide them beneath this magnificent Fern. Scarcely had he done this, when the Danes obliged him to convey a formidable party to a different direction. Thus his child and beloved wife escaped their observation and were saved unscathed. Grateful for the mercy received, the daughter gave to it her father's name, and it is called Osmunda Regalis. Gerarde remarks, " The root and especially the heart or middle part thereof boyled or else stamped and taken with some kind of liquor, is thought to be good for those that are wounded, dry beaten, and bruised, that have fallen from some high place. The tender sprigs thereof at their first coming forth are excellent good unto the purposes aforesaid, and are good to be put into balms, oyles, and consolidations or healing plaisters, and into unguents appropriate unto wounds, punctures, and such like." Such a value did our sage forefathers set on this and many other herbs and vegetables.

The localities of this Fern are—

Axminster; Higher Beaver Batches, Furzeleigh, the Moor, Little Park, and New Park.

* Beaminster; Meerhayes.

Buckland; in a ditch at the east end near Otterford.

* Chaffcombe; in a boggy wood near Avishays.

* Churchstanton; on Blackdown hill one mile and a half south west of Holmen Clavel.

* Colyton; Borcombe, and in a bog near Hangman's Stone.

* Combe St. Nicholas; Copse in Combe Wood.

Hawkchurch; Cowse.

Monkton Wylde.

Northleigh; between Road Pit and Ball's Cottage.

Offwell; Colwell Moor, and Copse of Smallcombe.

Southleigh; Bullhall Copse in Wiscombe Park.

Stockland; Colmar Copse close to Ridge.

Uplyme; in dells near Woolly Head, and in * Hole Common.

* Yarcombe; in a marsh.

POLYPODS. POLYPODIACEÆ.

Family I. Polypodies. Polypodieæ.

Fructification on the back of the frond. No cover to clusters of fruit. This family is subdivided into two genera.

1. Gymnogramme. Clusters oblong or linear. Of this genus none grow in the neighbourhood.

2. Polypodies. Polypodia. Clusters round, hemispherical. Of this we have two species.

Plate I, fig. 3.

> "Here finds he an oak rheum-purging polypode
> And in some open place that to the sun doth lie,
> He fumitory gets, and eyebright for the eye,
> The yarrow wherewithal he stops the wounded gore,
> The healing tutsan then and plantane for a sore ;
> And hard by them again he holy vervane finds,
> Which he about his head, that hath the megrim, binds."—
> Drayton's Polyolbion.

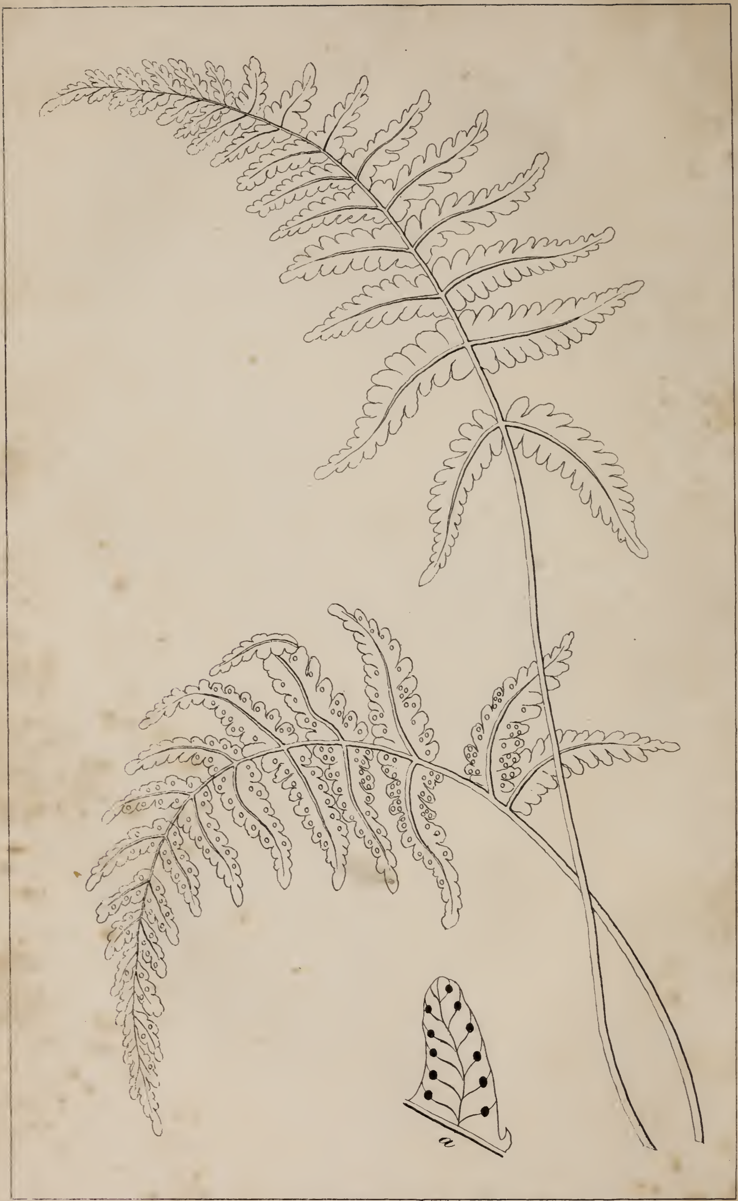
1. Common Polypody. *Polypodium vulgare.* Our hedge-banks and old trunks of trees are covered with this in all directions during the winter months. While in the icy regions, Franklin and Parry could behold no green spot or leaf; and while in the burning deserts of Africa, the parched and exhausted traveller can only see oceans of sand, and a mere tiny moss is most exhilarating and refreshing ; we pass by unheeded this cheering production of the great Creator at a season when all seems dreary and desolate. The frond of this Fern is strap-shaped and pinnatifid, that is, deeply divided, but not quite to the mid-rib, for then it would be pinnate. Its clusters of fruit are remarkably large. The leafy part averages eight inches in length. The side-veins of the leaflets are alternate and divided into two or three branches; the highest branch of the vein is fruit-bearing, the others end in a knob, and thus become club-shaped. The roots or underground stems are about the size of our little finger, and creep underneath the earth or on the bark or moss of old trunks of trees, and adhere to them with great

tenacity. These branch here and there with many fibres underneath, and are covered with dense brown scales, which peel off at a year's end and become quite smooth. From the breaking off of the fronds of the previous year, there appear in the roots many a scar, like those of a valiant soldier, who has been bravely engaged in the defence of his beloved country. The stalk is usually as long as the frond itself, and the fructification is confined to the upper part, and is at the end of its vein. The edge of the leaflets is generally not cut, though they sometimes are serrated and notched. The young fronds are often inconspicuous during the summer, and the beauty of this plant appears in the winter months.

This Fern has a very wide range. It thrives in almost every part of Europe, and though it shuns the torrid zone, is found in the northern regions of Asia, and is not altogether excluded from Africa. Common as it is, it has its peculiarities. It does not frequent the open heath or common. It rather delights in the works of man, and settles on some ancient building, ruined castle, or abbey, or quietly reposes on an old wall, hedge, or bank. It does not hug in its embrace the lofty forest tree, but clasps some decayed and stunted pollard oak or ash with great pertinacity, and hastens on its ruin. Our forefathers used to make a distinction between the Polypody of the oak and the Polypody of the wall, but they are identically the same plant, with this difference only, that generally when growing on the wall, it is a more stunted and starved specimen.

It is almost unnecessary to make any remark respecting its cultivation. Let the roots be extracted in a compact form and placed on a rockery, or if firmly adhering to an old stump, let a slice be sawed off where the roots are thickly matted together, and it will most certainly thrive. Some of our city friends suspend it in a wooden basket, wherein is placed bog moss, dead leaves, and sand, and consider it, thus placed, very ornamental to their greenhouses. If such an attempt be made, the gardener should attend to ventilation and a due supply of fresh air.

Some of the old writers ascribe great medicinal virtues to this plant. Dodonæus relates " That the inhabitants of the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Rhine and Mosa, by using a decoction of it, are freed from those tumours in their hands, feet, knees, and joints, wherewith they are much troubled." Are any low-spirited, and disturbed by night? Parkinson declares "That the distilled water of the roots and leaves, taken many days together, is commended against melancholy and fearful or troublesome sleeps and dreams." He also adds "That the roots beaten small and applied to the nose, cure the disease called Polypus." The medical men of the present day very properly object to all these nostrums, and Sir James Smith remarks, that the medicinal properties of the Polypody "are not enough to make it worth enquiring whether that of the oak or that of any wall or cottage be more endowed with them." Even old Gerarde designates them, "old wives' fables, fit only for writers who fill up their pages with lies and frivolous toies."

The Plant had its name from two Greek words πολυς πους, having the signification of many feet, because it has many creeping roots. Gerarde says "that the Grecians call it Polypodium, because the holes of the fishes Polypi appear in the roots." The classical writers, Dioscorides and Pliny state, "that it is so designated from the suckers or feelers of Polypi, which resemble curls of hair." There is certainly something like the feelers of Polypi in the underground stem and roots.

Plate V.

The feathery Fern, the feathery Fern,
It groweth wild and it groweth free,
By the rippling brook, and the wimpling burn,
And the tall and stately forest tree—
Where the merle and the mavis sweetly sing,
And the blue jay makes the woods to ring,
And the pheasant flies on whirring wing,
Beneath a verdurous canopy.

2. Beech Fern or Mountain Polypody. *Polypodium Phegopteris*. This plant has only yet been found in one locality within the region of the Axe. For the discovery

of this species, and a large number of new varieties, we are indebted to Mr. Moly, of Hawkchurch. This plant much resembles a small form of the Male Fern, but instead of the fronds having a leathery texture, they are thin, delicate, and of a pale green colour. The clusters of spores are small and round near the edge of the lobe or leaflet, and in fine specimens arranged in two rows, one on each side of the mid-vein. From the mid-vein issue on each side alternate or sometimes opposite veins. See Plate V., fig. A. The cluster of spores is not at the tip of the veins, as in the Common Polypody, but always a little before its extremity. The veins extend to the edge of the leaf, which is not the case with the Common Polypody. The leaflets or lobes are oblong and blunt, and, generally, not notched at the edges. The pinnæ or branches are deeply pinnatifid, but scarcely ever sufficiently divided to form distinct leaflets. The pinnæ also are nearly or quite opposite, united by the leaves to the mid-stalk or rachis, except the lowest, which sometimes has a little stalk. All the branches point upwards, except the undermost pair, which always bend downward, as if they felt their great inferiority to their elder brothers, and hung down their heads before them. The lowermost branches are also at a greater distance than the others are from those above them. The stalk of the Beech Fern is frequently longer than the frond, pale green and brittle, except near the base, where it is glossy brown and covered with scales. The plant has a creeping root, about the thickness of a straw, dark brown, tough, hairy, and slightly scaly when young, but when old without scales and naked.

The frond would be decidedly triangular in form if the lowest pair of pinnæ did not bend downward. This makes it appear in some degree egg-shaped. This Fern rises up in May on erect and brittle stems. In July it attains perfection, when its position is nearly horizontal. Its foliage fades and dies, when the weather becomes cold and chilly. Its height, including the stalk, is from four to twenty inches.

This plant has been found in several parts of Devonshire, especially Dartmoor: it is, however, more luxuriant in the north of England and Scotland, amidst moss, on wet rocks and stones. It is widely dispersed through Europe, preferring the cool and mountainous countries. It grows in Iceland and the Alps of Switzerland. It is found in various parts of Asia, from the Altai and Siberia as far east as Kamschatka. Algeria is said to produce it. Specimens have also been brought from Greenland, and Labrador, throughout Canada to the Rocky Mountains, and from the Northern United States to the North West coast at King William's Sound. Watson calls it "rupestral." Our plant grows in a boggy piece of ground in Hawkchurch within a copse among bushes and trees, where there is a patch of a hundred or two fronds. It is an interesting addition to the "Ferns of the Axe."

With regard to its cultivation, there should be a compost made of two-thirds bog earth and one-third sand. Great care should be taken not to break off the fibres of the creeping root, when it is taken up for transplantation. It should have a copious supply of water, which should not be allowed to stagnate. This might be guarded against by placing underneath the compost coarse rubble, or small pebbles, or something of this kind.

FAMILY II. SHIELD-BEARERS. *Aspidieæ.*

Some travellers have mentioned a most remarkable plant of this family, the Tartarian Lamb, *Aspidium* or *Cibotium Baromez.* This, from its peculiar colour and form, was supposed to be a vegetable animal. Struys, an old traveller, says "On the western side of the Volga there is an elevated salt plain of vast extent, but wholly uncultivated and uninhabited. On this plain grows the Boranez or Bornitsch. This wonderful plant has the shape and appearance of a lamb with feet, head, and tail distinctly formed. Its skin is covered with very white down, as soft as silk. The Tartars and Muscovites esteem it highly, and preserve it with great care in their houses, where I have seen many such lambs. The sailor who gave me one of these precious plants, found it in a wood, and I had its skin made into a waistcoat. I learned at Astracan, from those who were best acquainted with the subject, that the lamb grows upon a stalk three feet high; that it turns itself round and bends down to the herbage, which serves for its food. They also said, it dries up and pines away when the grass fails." The real fact of the matter is, that when other vegetation dies, this plant dies also. The creeping underground stem or root is covered with yellow down, like wool. When these stems, branching in different directions, are placed in an inverted position, they resemble the legs, horns, body, and tail of a sheep. So much for the Tartarian lamb.

> "Cradled in snow and fanned by Arctic air,
> Shines, gentle Barometz, thy golden hair;
> Rooted in earth each cloven hoof descends,
> And round and round her flexile neck she bends;
> Crops the grey coral moss and rosy thyme,
> Or laps with hoary tongue the melting rime;
> Eyes with mute tenderness her distant dam,
> Or seems to bleat a vegetable lamb."—Darwin.

This family is divided into two genera.

Genus 1.

1. Shield-Ferns. *Lastrea.* Cover round or kidney-formed, having a slit in it, and attached by the inmost point of that slit, (sinus.) Side-veins of leaflets distinct after leaving the mid-vein.

Plate I, fig. 6.

1. Sweet Mountain Fern. *Lastrea Montana.* He who would gather this Fern, must not remain in the lowly valleys, but ascend aloft. It is called Mountain Fern because it thrives in more elevated situations. Beyond the regions of the Axe, at Fingal Bridge in Dartmoor, it thickly lines a rippling stream and greatly tends to beautify the scenery. At Lynmouth, too, that most lovely spot in North Devon, when we have wended our way to Watersmeet, we behold this odoriferous Fern in the greatest profusion. It is rather a scarce plant in our district. When gently squeezed, a sweet fragrance issues forth from the numerous glands on the under surface, and hence the name. With regard to the covers of the fruit, they are not often seen, or rather it

would be more correct to say that they are very delicate and soon fall off. The frond is pinnate and the pinnæ are deeply cut (pinnatifid) more than half-way to the mid-rib. The leaflets or segments are rather blunt at the top, oblong in form, and very slightly if at all notched at the edges. The stalk is very short and densely covered with light scales. From about the middle of the frond to the stalk the branches or pinnæ gradually become shorter and shorter, until the last becomes less than an inch long, and close to the very stem or stump (caudex). It should also be observed that as they taper downward they become more and more distant from each other.* The lowermost in fine specimens are often an inch and a half or two inches apart and triangular in form. This plant may be mistaken by the uninitiated for the Male Fern, but if attention be paid to the circumstance of the remarkable narrowing down of its branches, and of its clusters of fruit being much nearer the edge of the leaflet, the difference of the species will be easily discovered. It varies from ten inches to two feet long. The lowest pair of branches often point downward. If we hold the frond up to the light little transparent pores are sometimes visible as in some of the St. John's Worts. A curious fact is also worth noticing, when the Fern begins to unfold, the branches or pinnæ appear quite straight, and not coiled-in at their extremities as is generally the case with the Fern tribe. The side-veins of the leaflets alternate on the mid-vein with clusters of fruit *near the extremity*, but not as in the Common Polypody at the extremity itself. If the veins are forked *both veins have these clusters*, and in this respect also, differ from the Male Fern. The whole plant is likewise more pliant and flexible.

This Fern is easily cultivated, if placed in bog earth or yellow loam, and supplied with abundance of moisture. It grows here most frequently on high ground upon black bog earth near a rippling stream. Sometimes it locates itself in damp open heathfields.

The old Herbalists do not seem to have noticed this Fern. We have not therefore received any account of its healing powers. Ray however appears to have been acquainted with it, and denominates it "The Male Fern of the heathfield Dunsmore."* With regard to its geographical position it is distributed throughout England in elevated situations. It is not however confined to hills, for there are many instances where it is found on waste grounds in more level countries and especially on the borders of very damp woods by the side of a little stream. In Ireland it is scarce. It extends throughout the Continent of Europe as far north as Norway and as far south as the Asturias in Spain. Hooker calls it "*Nephrodium Oreopteris.*"

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* Plate I, fig. 6, not correct in this respect.

The localities of this Fern are—

Axminster; New Park.
Broadwinsor; Loosdown.
Chaffcombe; field north of Avishayes.
* Chard; between the town and Avishayes.
Chardstock; gully near Alston on Birch-hill Common and edge of a wood near Beacon-hill.
* Charmouth; Langmoor Copse.
Churchstaunton; fields near the Rectory.
Dalwood; north of Danes-hill.
Hawkchurch; Stoodley's hill.
Kilmington; old road to Honiton near the village.
Monkton Wylde; lane near Warren House.
Northleigh; between Road Pit and Balls Cottage.
Offwell; bank of Smallcombe Copse.
Otterford; very common.
Shute; near the eastern Lodge.
Southleigh; Wiscombe Wood.
Stockland; hedge-bank near Colmar Copse, Ham Lane, and lane between Kilderhayes and Penny hill.
Uplyme; lane north of Woodhouse, and boggy Wood north-west of the village.
Wambrook; near Shagsplood.
Wayford, near Crewkerne; Beerchapel.
Yarcombe; Woodend.

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* Filix mas ericeti Dunsmore Petiveri.

Plate I, fig. 7.

"Though in Heaven the trees
Of life ambrosial fruitage bear, and vines
Yield nectar; though from off the boughs each morn
We brush mellifluous dews, and find the ground
Covered with pearly grain, yet God hath here
Varied His bounty so with new delights
As may compare with Heaven."—Milton.

2. Male Fern. *Lastrea Filix mas.* In this our family of plants we have not only the Male but the Lady Fern also. The one now before us is the Male, so called because it stands up firm, robust, and sturdy, not ashamed to lift up its head amidst the vegetation by which it is surrounded. May we not learn even from nature's works to be stedfast in purpose and firm in conduct, not vacillating and giving way on every trifling occasion. This species is scattered over every part of the kingdom and is most abundant in rich soil in shady situations. A visitor would be richly delighted by beholding this plant in our district in the greatest perfection. Though sometimes only a foot and a half high it is not unfrequently as high as four feet. It is sub-bipinnate. The leaflets are strap-shaped or oblong and the ends rounded. The clusters are from three to eight on each leaflet, placed in two rows near the base and distant from the edges. When it is about a foot high and the fronds are not in the least expanded, the stalks are richly covered with reddish yellow scales, and the summit is curled together like an ammonite, or a hairy caterpillar which folds itself up when any attempt is made to touch it. When the frond begins a little to expand itself, the stalk and greater part of the plant keeps itself perfectly upright, nearly two or three inches of the summit hanging forward and assuming the appearance of an elephant's tusk. It is very stiff and erect, growing shuttlecock-fashion around its trunk. The covers of the fruit are remarkably permanent. The branches (pinnæ) are numerous, narrow, and tapering, sometimes with a few of the lower segments or divisions forming perfect leaflets. The lobes or semi-leaflets are very slightly cut or nicked at the edges, sometimes in shady places more

deeply as in our figure (Plate I fig. 7) and then it is *var.* incisa or affinis. The fructification is very abundant but confined to the upper part of the frond. The upper and lower leaflets of each pinnæ are nearly of the same size. The side-veins of each leaflet are branched, and *the upper one only* bears fruit which is quite contrary to what happens in the preceding species. The lower branches (pinnæ) are considerably shorter than those of the middle of the frond, but never dwindle to the diminutive form of the Mountain Fern (Lastrea Montana). The root is strong, firmly fixed to the ground, and of a blackish colour. Sometimes the trunk or stock is several inches above ground, and thus resembles a Tree Fern.

This is not confined to our own country, but is equally common in every part of Europe and Northern Asia. It was not unknown to the ancients. All writers give it the appellation of Male Fern (Filix mas). Newman gives the name of its genus, Dryopteris; Hooker, Nephrodium.

The Siberians boil this Fern in ale and are fond of the flavour which it imparts. In Norway the curled leaves infused in hot water afford an acceptable fodder and litter for cattle. The ashes of this and of Brake (Pteris Aquilina) are used by the manufacturers of soap and glass. It was also vended in olden times for charms against the dealers in the "black art." Divers vagabonds were in the habit of preparing from its root, and from its young unbent and yet unexpanded branches the "lucky hands" or "St. John's hands," which they sold to ignorant people both in town and country as preservatives against witchcraft and enchantment. "It is a pity," says an old writer, "that such remedies will not also protect us against death." Parkinson sagely remarks "The seed which this and the Female Fern do bear, and to be gathered only on Midsummer eve at night, with I know not what conjuring words, is superstitiously held by divers, not only mountebanks and quacksalvers, but by other learned men, (yet it cannot be said but by those that are too superstitiously addicted) to be of some secret hidden virtue, but I cannot find it exprest what it should be." Without dwelling on the imaginary virtues of this plant, which exist only in the minds of the credulous and superstitious, we may venture to state that God in His mercy has given us this excellent herb as one of the best remedies for tænia or tapeworm. It appears to have been used by the ancient physicians Theophrastus, Dioscorides, and Galen. Professor Christison, in the Edinburgh Monthly Journal for June 1852, and July 1853, has shown that it is almost uniformly successful in the form of an oleoresinous extract obtained by percolation of the root with ether. He indeed commends it as a less disagreeable and more efficient anthelmintic than the Abyssinian Kousso, the Continental pomegranate, or the American turpentine.

There is no dfficulty in the cultivation of this Fern. Supply it with rich vegetable mould in a shady place and keep it rather moist, and it will flourish. It needs not so much water as either the Royal Flowering or Mountain Fern.

Newman places the three next species under a different genus, which he calls Lophodium (plumed or feathered). It seems better and simpler to retain them among the Shield Ferns (Lastrea). Let it, however, be remembered with regard to these, that the first upper branchlet (pinnule) of the lowest pinnæ is much shorter than the first under branchlet. Vide Plate I fig. 8 *and* 9. *and Plate II fig.* 10.

* * *

Plate I, fig. 8.

* * "Sweet to muse upon His skill displayed,
Infinite skill in all that He has made,
To trace in nature's most minute design,
The signature and stamp of power divine,
Contrivance intricate, expressed with ease,
Where unassisted sight no beauty sees."—Cowper.

Dark-scaled Shield Fern. *Lastrea dilatata.* We are now come to a portion of the Shield Ferns which assume a feathery or plumose appearance. This and the two following species are a great ornament to our shady woods and deep gullies and hedge-banks. This plant grows in great luxuriance in this locality. It thrives in rich moist and shady situations. None of our Ferns exceed it in height except the Common Brake (Pteris aquilina) and the Royal Flowering Fern (Osmunda Regalis). It is tripinnate, *i.e.*, not only the branches are divided but the branches of the branches likewise. There is another peculiarity in this Fern, viz. the two or three lowest pinnæ or branches are always shorter than those above. The scales on the lower part of the stalk have likewise a dark centre with transparent margins as represented in this woodcut. The root-stock is large and upright, sometimes a foot above the surface, and covered with dark scales. The leaflets are deep green, generally drooping, and never have the edge curled upwards. The lobes or divisions of the leaflets are blunt, with a little spine on each. The stalk is thick at the base and as long as the frond, covered with these dark centred scales. The frond is egg-shaped or lance-shaped, Plate I, fig. 8. The lower pinnæ are triangular. The upper are less so. The uppermost are nearly linear. When the plant is in bud and not quite unfolded, it does not hang its summit down like a shepherd's crook or a rhinoceros' trunk, as is the case with the Male Fern. The end of the bud turns to the right and left making a loop or ring, and assumes with its dark scales a very grotesque and peculiar form. The cover of the fruit is circular with a slit in it, (the mark of the genus) and when seen through a lens or microscope is found to have stalked glands on the edges,

as represented in woodcut c. page 15. The frond is scarcely ever erect in growth. The branches are nearly opposite. The clusters of fruit are distinct. The veins are branched and the fruit is always on the upper branch of the vein. As there is some difficulty in discerning the difference between this and the two following species we call attention to the four following marks of distinction. 1. In no case, except in seedlings and starved small specimens is the frond triangular. It is egg-shaped or lance-shaped. The three lowest pinnæ, as has been already observed, are shorter than the fourth, and each of these shorter than the one above. Thus if the lowest were seven inches, the second would be about seven inches and three quarters, the third eight inches and a quarter, the fourth nearly nine inches. 2. The scales have a dark centre with a transparent edge as represented in woodcut d. This may not always appear at first, but will if the plant is kept for a few hours or some of the scales will have their middle darker than the outer part. Babington remarks, "The largest scales of the full-grown plant should be examined." 3. The leaflets are more or less drooping. They may sometimes be flat, but never with their edges curled upward. The whole frond is arched or curved in its position. 4. The covers of the clusters of fruit, when examined under a glass, will be found to have stalked glands to their edges. This, as all other microscopical investigations, must be done carefully or we shall ourselves break off the delicate glands.

It seems very doubtful whether this plant, so common in our woods and copses, has been alluded to by our old Herbalists or even Ray. Perhaps Gerarde when he describes what he calls "a branched Male Fern with toothed pinnules"* speaks of this species. He says, "The side branches, the longest being the third pair from the root, were nine inches long, and shorter and shorter toward the top, in number about twenty pair." Whether Ray alluded to this or the following species is not clear; Newman thinks the following. It is not at all likely that he passed by unnoticed all three of this group. In some instances, especially in dry spots, it is very stunted: in other cases five feet high, but always ornamental and elegant in appearance. The Fern is common throughout Europe. Francis also states, that it grows in North America from Pennsylvania to Virginia.

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* Filix mas ramosa pinnulis dentatis.

If any person wishes to adorn a garden with this child of nature, it can be easily done by taking up the roots carefully, planting them in loose vegetable mould in a shady spot, and supplying them with moisture. Newman calls this Fern Lophodium Multiflorum.

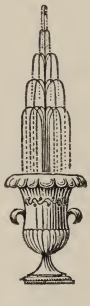
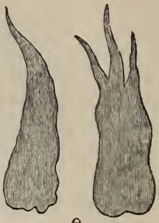


Plate II, fig. 10.

> "Then spring the living herbs, profusely wild,
> O'er all the deep green earth, beyond the power
> Of botanists to number up their tribes:
> Whether he steals along the lonely dale
> In silent search, or through the forest, rank
> With what the dull incurious weeds account,
> Burst his blind way or climbs the mountain rock,
> Fired by the nodding verdure of its brow."—Thomson.

4. Hay-scented Fern. *Lastrea fænisecii.* Dr. Solander, the celebrated Botanist who accompanied Captain Cook in his first voyage, left behind him a dried specimen of this plant which is in the Banksian Herbarium. He it was who saved a large party from destruction by cautioning them against sleeping, when they were ascending the heights and colder regions of the mountains of Terra del Fuego. He too proved how much easier it is to give advice than to practise it, as he was with difficulty kept awake during that perilous expedition. His name for the plant was Polypodium æmulum. It was only recently that we discovered this and the next species, the Spinous Fern, (Lastrea spinulosa) growing in this locality. A ramble in the North of Devon, where these plants were known to grow, led us to pay more particular attention to some distinctive marks, and the discovery of one of these at a distance was the means of our lighting on them almost close to our own doors. Thus many travel into distant lands to behold beautiful and romantic scenery, and when they return home perceive that that which they have gone so far to see is far exceeded by the hills and dales and purling brooks and winding streams, which glide through the lovely valleys of Devonshire.

The frond of this Fern is decidedly triangular, and differs from the preceding species, the dark-scaled Fern, in these respects. The dark-scaled Fern has always except in stunted specimens the lowest branches (pinnæ) shorter than two or three above it. The leaflets bend downwards, and the scales in the lower part of the stalk have a dark centre. In this plant the lowest branches are the longest, and hence it is triangular. The leaflets at the edges curl upwards and their middle appears hollow. The scales are of the same light brown colour throughout, narrow lance-shaped and torn frequently at the summit. The covers of the clusters of spores are without *stalked* glands, but jagged at their edges with a few globular ones that are quite *stalkless*. The buds of the fronds before they unfold, are regularly rolled together (circinate), and do not assume the appearance of the preceding species. The lobes of the leaflets are serrated and end in a spine. The stalk is generally dark purple, very stiff and woody, with the transparent scales more closely adhering to it. The plant has a very elegant appearance, being sprinkled over with minute glands, which when pressed, and when any part begins to decay, emit the scent of hay. It seems to require elbow room. Hence we find it where the coppice is not very thickly matted together. It is also a *perfect fish*, and loves to locate itself where the water trickles down copiously. This Fern is decidedly an evergreen, of compact growth, and grass-green colour, and appears to great advantage in a garden or conservatory. In Newman's work there is this description given by Mr. Ogilvy, of Dublin, "This is in my opinion the most beautiful of our robust Ferns. In style of growth, and elegance of form it is most striking. It presents two tiers of fronds, if I may so describe them, the lower more pendulous, the upper more erect, and it is on the more erect fronds that the fructification is most perfectly developed. The dark purple stem contrasting with the light green and crisped appearance of the pinnæ gives a peculiarly elegant appearance to the plant. It likes the seclusion of trees and places where it is not pressed by other vegetation."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This species is of a hardy nature and if supplied with sufficient moisture and shade will not require much trouble in cultivation. It should be in a loose soil without any admixture of clay or marl. If in a pot, it would be of service to lay at the bottom the bog moss (Sphagnum) and pebbles, and above, black bog, peat or sand. When regularly watered the plant will thrive, and the liquid will not stagnate but percolate through the moss and pebbles. It will also flourish in a rockery of sandstone.

The old Herbalists and Ray do not seem to have noticed the distinctions of the three species, the dark-scaled, the hay-scented, and the spinous shield Ferns (Lastrea dilatata, fænisecii, and spinulosa.) We must not be surprised at this, when Hooker and Bentham, two eminent Botanists of the present day, pronounce these three to be only varieties of the same plant. We agree with Moore, Newman, and Babington, in thinking that they are distinct. In some cases they may approach very near to one another, still there are certain definable lines of demarcation between them. Mr. Bree in Cornwall, and Mr. Lowe in Madeira, were the first to call attention to this plant, if we except Dr. Solander. The one called it recurvum, curved back, in allusion to the turning up of the edges of the leaflets, and the other fænisecii (of cut hay or hay-scented) because of the scent of hay which it emits. It is found in various parts of England, especially Cornwall and Devonshire. Mr. Lowe noticed it in Madeira, and Newman adds the Azores and the Cape de Verde Islands. As has been already stated, there are a variety of names given to this species. Newman calls it Lophodium fænisecii. Hooker Nephrodium spinulosum *var.* æmulum. Moore Lastrea æmula.

The localities of this Fern are—
* Cotleigh ; hedge-bank on the road to Honiton.
* Monkton Wylde ; near Gamekeeper's Lodge.
Southleigh ; Wiscombe Wood.
Stockland ; Harner Hill.
Uplyme ; boggy wood on the north-west side, and Greenway head.
* Winsham ; Baymoor Copse.

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Plate I, fig. 9.

> "Thy desire, which tends to know
> The works of God, thereby to glorify
> The great Work-master, leads to no excess
> That reaches blame, but rather merits praise.
> For wonderful indeed are all His works,
> Pleasant to know, and worthiest to be all
> Had in remembrance always with delight."—Milton.

5. Spinous Fern. *Lastrea spinulosa.* This Fern is more erect than the two preceding species. Neither do its leaflets curl upwards, and if they slope at all it is very slightly downwards. All three are tripinnate, *i. e.* the pinnules of the pinnæ are pinnate, or in other words the branchlets of the branches are branched. Sometimes in this species the frond is only bipinnate, and Hooker so describes it. The lower part of the stem is not as in the case of the other two thickly covered with scales, but sparingly; and these are round or broadly egg-shaped and transparent as appears in the woodcut. The stem is stout, the root creeping, and the plant does not lie compactly together, but is of a straggling growth. The frond is long and narrow, and the six lowermost pinnæ on each side are of the same length and form therefore a parallelogram. After this the frond begins to taper to a point, and the pinnæ as they approach the summit become shorter and shorter. The under pinnules of the first pair of pinnæ are generally twice as long as the upper ones. The clusters of seeds seem to be distinct and perfectly separate, and generally form a regular double line. When the pinnule is deeply divided into leaflets or distinct lobes, then each branch of the side-vein has a cluster of seeds as in the Sweet Mountain Fern. In this case the double line of clusters does not appear so regular to the eye. Each lobe of the leaflet has a little awn or spine, and hence it is denominated the Spinous Fern. The branches are nearly but not quite opposite each other, and the naked part of the frond is as long as the leafy part. Some have thought that the three Ferns last described are identical.

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We consider that they may sometimes approach each other, but a well practised eye will always discern a difference. The creeping root, roundish egg-shaped transparent scales, the *glandless covers*, the upright position, and peculiarly light green appearance, all combine to point out the Spinous Fern (Lastrea spinulosa). When we speak of the covers, of course they must be seen through a lens or a microscope, and then it will be found that they differ from woodcut c page 15, in not having glands. This Fern is by no means to be despised, and in its general appearance has considerable grace and symmetry. Since however the upper part of the frond is of a frail and delicate texture, it is frequently shattered by the wind and other causes, and is therefore not so ornamental for cultivation.

In closing our remarks on this species we may venture to remark in this utilitarian age, that the student of natural history is pursuing no useless occupation when he devotes himself to the contemplation of the beauteous works of God. The ear is disciplined by music, the hand by the nice touch as in the case of the blind; so is the eye by scanning, even in little things the varying course of nature's works. Surely it is most desirable that we should not be insensible to the regular order and nice distinctions which our great Creator has maintained in every portion of the vegetable creation from "the cedar in Lebanon to the hyssop that groweth on the wall." God has given us our sight to turn it to a useful account, and to discriminate all His works, and to find out "how in wisdom He hath made them all."

The old books, for the same reasons as were mentioned in the preceding species, do not speak of this plant. With regard to its cultivation it requires a light sandy or peat soil. It needs even more water than the Hay-scented Fern (Lastrea fœnisecii), and should never have a bright glaring sun. Nature speaks for herself, when we notice how it grows in wet shady woods in a loose crumbling soil.

Newman gives it the name of Lophodium spinosum, and Francis designates it Aspidium spinulosum; Moore calls it Lastrea cristata *var.* spinulosa; Hooker Nephrodium spinulosum *var.* bipinnatum.

The localities of this Fern are—
Axminster; copse in Park Farm.
Chaffcombe; wet Wood between Avishays and the village.
* Charmouth; Langmoor Copse.
Hawkchurch; woods near Cowse.
Southleigh; Wiscombe Park.
Stockland Hill; Mr. Jeremy's Plantation.
Uplyme; boggy wood on the north-west side of the village.

Genus 2.

Prickly Ferns. *Polysticha.* Cover circular, attached by the centre, and free at the edges. First upper leaflet larger than the next and also than the one immediately below it. The little bristles on the leaflets of this tribe sufficiently show why they have the English name of Prickly Ferns. The classical name signifying "many ranks" was probably given because the back of the frond is covered with dense masses of fructification. The chief distinction between this and the Shield Ferns (Lastrea) is that the covers have no slit and are attached by their centre. Though the species differ much in their form and appearance, and though there are many varieties, all the leaflets have more or less on the side opposite the main rachis a little lobe technically called an ear or auricle. Smith and others used to unite the Prickly Fern (Polystichum) and the Shield Fern (Lastrea) under the common name Aspidium. The difference in the covers can quite account for their being divided into two groups.

Plate I, fig. 5.

"There's beauty all around our paths,
If but our watchful eyes
Can trace it 'midst familiar things,
And through their lowly guise."

1. Common Prickly Fern. *Polystichum aculeatum.* Newman says "The European range of this Fern extends to

every country except Spain, where one would rather suppose it to be unobserved than absent, since it commonly occurs throughout France and ascends the Pyrenees to the height of 2500 feet. It is found in Asia, Northern and Southern Africa, and North America. In North America it is extremely rare but perfectly identical with our British plant." In this district this species is less common than the following one, the Angular Prickly Fern.

The Prickly Fern has a short stalk (stipes) which is densely covered with scales. The fronds are stiff, one to two feet high, lance-shaped, or even linear. The leaflets nearest the rachis or mid-stem of the frond on the upper part of the lower pinnæ are *much longer* than the one next to it, and often overlap the base of the pinnule next above it. The leaflets also have no distinct stalk, but are either decurrent, that is, one leaflet seems to run into the other, or have a thick wedge-shaped base by which it is attached to the rachis. If we hold up the Fern we shall observe that the lowest part of this leaflet is close to the mid-stem of the frond, while the light will appear in the upper part. The pinnæ are alternate. The scales are not only upon the stalk but also on the mid-stem or rachis, where they are much narrower and almost linear. The whole plant is tough and leathery and not only outlives one but sometimes two or three winters. The different years' production may be distinguished by their difference in colour and their browner aspect. It is also more erect than the succeeding species, and of a more rigid texture. The plants are fully formed about Midsummer, and the fructification appears quite ripe a month or two later. There is a little projection or ear (auricle) to the leaflets, especially those nearest the mid-stem at the bottom and outer edge of these leaflets. This is still more apparent in the next species. Often the back of the upper part of the frond is thickly covered with clusters of spores. The side-veins of our Prickly Ferns are alternately branched. The branches never meet but reach the edge of the leaflet. The masses of fruit are seated on the uppermost branch of the side-veins. To each serrature there is a sharp and strong bristle, and hence the name Prickly Fern.

There is evidently a description of the Prickly Fern (Polystichum) in Johnson's edition of Gerarde's work, page 1130. It is described * as "the not branched Male Fern with broad auricled spiny pinnules, each leaf, especially those next the stalk," (rachis) "having on that side farthest off the stalk a large ear or out-growing ending with a sharp prick, like a hair, as doth also the top of the leaf. Some of the sides of the leaf are also nicked, ending with the like prick or hair. Each leaf hath two rows of dusty seed-scales." Ray also in his Synopsis speaks of this plant.

With regard to its medical properties, the same writer describes it as "hot, bitter, and dry and sometimes binding." We know not whether this Fern has that peculiarity which Parkinson two hundred years ago ascribed to all. "The fume of Fern being burned driveth away serpents, gnats, and other noisome creatures, that in the fenny countries much molest both strangers and inhabitants that lie in bed in the night time with their faces uncovered." Some consider that Fern placed on a horse's head keeps off the flies that tease and sting the poor animal.

Francis calls this species "Aspidium lobatum." Hooker "Aspidium aculeatum var *a* lobatum and *b* intermedium."

The localities of this Fern are—

Axminster; Evil lane, Woodbury lane, and Wyke.

Chard; on the road to Axminster, and near Wadeford.

Chardstock; near Galloping Close.

Dalwood; between the village and Corry, and in Millwater lane.

Hawkchurch; between the village and Broom.

*Kilmington; between the village and Beckford Bridge.

Offwell; lane skirting east and lower side of Colwell.

Stockland; near Cor Mill, and between Heathstock and the villages.

Thorncombe; } not uncommon.
Winsham; }

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* Fillix mas non ramosa pinnulis latis auriculatis spinosis.

Plate I, fig. 4.

> "The Ferns, too, are waving, all statelily here,
> With seed-stored fronds thickly laid,
> And shedding, when hastily brushed by the deer,
> Their light fertile dust o'er the glade."—Twamley.

3. Angular Prickly Fern. *Polystichum angulare.* Though the scientific agriculturist of the Midland counties may boast of the superior cultivation of his farm ; though their extensive fields, divided by low stone walls, may be better suited for the growth of corn and artificial crops ; the botanist and lover of nature's productions may thank the yeomanry of the West for their huge hedge-banks, richly covered with moss and the elegant Fern which we have now to describe. This plant differs from the preceding, as it droops gracefully, like the weeping willow, simple and attractive to behold. Almost every hedge in our valleys presents it to our view. The leaflets near the main stem of the lower pinnæ are very slightly taller than the rest, with a kind of ear (auricle) sticking out more distinctly than in the last species. They are generally not so sharp pointed, but much more rounded or blunt at the higher part. The prickles or bristles are more numerous. The foliage is pale green, and the little leaves have a distinct stalk. The pinnæ, too, are much longer than in the last, and the frond itself is generally far more luxuriant. It varies from one to three or four feet. The little ears or auricles are sometimes divided to the mid-rib, which gives the plant a light and elegant appearance. In such a case the frond becomes tripinnate. There are then, too, very many pinnæ which are distinct, more pointed, lax, neatly and nicely curved, to the admiration of all who have an eye to perceive, in every-day objects, the beautiful productions of our great Creator. In other cases, the pinnules are very narrow and linear, and in others (so Protean is its character) very broad, almost of four equal sides, but in an oblique direction, still with a little ear at its base on the side opposite the main rachis. We may lastly mention, that now and then, like the brute beasts themselves, the leaflets have two ears, but the inner one is not so large as the outer one. Moore mentions forty-three varieties. As a general rule, the plant

is softer and more delicate, as well as more shaggy. The frond is never broad, but broader than the other Prickly Fern (Polystichum aculeatum.) In early spring, the young frond makes its appearance with its extremity bent backwards in a most peculiar manner, and then raises upwards again its curled-in shoots. The ends of the young branches are at the same time rolled in, and are by no means unlike a small white silken ball. In young seedling plants the branches are not divided into distinct leaflets, but are merely serrate or pinnatifid. Juvenile botanists must not consider these to be new plants. Other seedling Ferns may also deceive for no plant is mature or perfect until it bears fructification. We may easily distinguish this from the Male Fern, as they often grow near one another, by its different habit and character. This droops and leans towards the earth; that stands nearly erect and groups around a central axis, in the form of a shuttlecock. The leaflets differ too. In this they are more or less sharp-pointed at one extremity, with bristles at their serratures: in the others, they are blunt, rounded, and oblong. There is a striking peculiarity in some varieties which is not found in many other British Ferns. Have we ever noticed little bulbs arising under the heads of flowers in the Garlics or Onions? These when placed in the ground, would produce a new plant; nay, in a wet season, they germinate of themselves, and we behold a plant growing, as it were, in the air. So also in the Tree Ferns of foreign lands, there are bulbs or buds in the branches, which send their roots downwards, while a new tree rises upwards in majestic grandeur. It is a strange sight to see the roots hanging down from the branches and at last fixing themselves in the ground. In some varieties of the Angular Prickly Fern, we have a miniature representation of this. In the stalk near the earth, or at the junction of the pinnæ and main rachis, there are amongst the chaffy scales, little bulbs or buds, from whence a new plant arises. If we take off these bulbs and put them in a loose soil, we should most successfully cultivate this variety. Our friends at Hawkchurch might try this experiment, as they have what Moore would designate Polystichum angulare, *var:* imbricatum. The leaflets overlap each other, and have four nearly equal sides, with the usual little ear protruding itself in the lower pinnæ. This plant seems to delight in the protection of man. We do not find it run wild with the brake in open downs, commons, and moors. It makes a snug retreat for itself in our Devonshire hedge-banks, and does not object, as many others do, to be improved by cultivation. Though the preceding species is more common throughout the United Kingdom, in Devonshire and Wales the contrary is the case. Some have doubted whether there be any essential distinction between these two plants, and when it is borne in mind that there are varieties running one into the other, they are *probably identical.*

There is no difficulty in making the Prickly Ferns thrive in a fernery. They may be even introduced with success into towns, where smoke and impure air prevail. The only thing requisite is to give them a sufficient supply of moisture. They often require the pruning hand, or else no other Fern would be visible. The preceding species is more durable, and bears frost better than the neat and graceful Fern which we have been now describing. The skilful gardener may also, we will not say, deceive, but rather attract and gain admiration by intermixing varieties, and placing side by side the different forms of this almost always elegant Fern.

This species, though generally so common throughout our district, is scarcely to be met with in Otterford and some of the adjoining parishes. That wild elevated district has the sweet Mountain Fern (Lastrea Montana) in great profusion to supply its place.

This is the last of the Ferns of the neighbourhood, belonging to the family of the Shield-worts (Aspidieæ). It is manifest that the name was given to the family because the covers of the fruit are round as a shield.

FAMILY III. THE SPLEENS. *Asplenieæ.*

The English and Classical names have been applied to this family, because the plants were supposed to be efficacious in curing diseases of the spleen. Modern practitioners ascribe to them no such virtues. Under this group are contained all Ferns having linear covers not parallel to the side of the leaflet, and opening lengthwise on one side. Many are found growing on rocks and walls, as well as on hedge-banks and in woods. The species indigenous to this country, are generally small evergreen plants, of a rigid texture, with polished stalks. The Lady Ferns are an exception to this rule, and partake in this respect more of the character of the Shield-worts (Aspidieæ). There are many exotics of this family. Specimens of these are frequently introduced to adorn our greenhouses.

Genus 1.

Lady Ferns. *Athyria.* This genus is a connecting link between the Shield-worts, (Aspidieæ) and the Spleens (Asplenieæ.) The cover is linear, not in a straight, but curved line. Sometimes it is very slightly crescent-formed, and sometimes as much curved as the circumference of a semicircle. In this case, when the cover is removed, it not unfrequently happens, that the cluster of spores seems to be round. The name *Athyrium* is of Greek origin, and signifies "without door or inclosure." It was doubtless so called, because the masses of spores burst open the bonds that confine them, and present tokens of their escaping captivity in the fringe, which remains on the margin of the cover. This fringe is best seen through a microscope. The first upper pinnule is nearly of the same size as the next and under one, and herein differs from the Feathered Shield Ferns (Lophodia.)

Plate II, fig. 11.

"Where the copse-wood is the greenest,
Where the fountain glistens sheenest,
Where the morning dew lies longest,
There the Lady Fern is strongest."—Scott.

Lady Fern. *Athyrium Filix Femina.* Though the Male Fern is to be highly valued for the medicinal properties of its roots, the Lady Fern far surpasses it in elegance, and indeed, seems to claim precedence in beauty over every other Fern. Its lovely colour, symmetrical form, and the elegant division of its frond, make it an object of general attraction. As its name seems to imply, it is very delicate, and requires to be treated tenderly. The Fern collector finds that a warm hand, and a heated room, make it fade, droop, and die. Herein it slightly resembles the Sensitive Fern * of North America. This is said to wither immediately on being touched by man, but to endure the touch of other bodies without injury. Sprengel, a German botanist, asserts, that he repeated the experiment several times with the same effect. The Lady Fern makes its appearance in May. At first it is curled together, but when the head (apex) of it is free, it hangs down and assumes the appearance of a shepherd's crook. There is one cluster of spores on each lobe of the leaflets. The pair of leaflets on each branch nearest the main stem, stand close and parallel to it, pointing upwards and downwards. The leaflets vary considerably in breadth, sometimes being linear, sometimes lance-shaped, and at other times elliptical. They are either notched or cut, pinnatifid, or pinnate. Often there are two or three teeth (not spikes or bristles) at the extremity of each lobe of the leaflets. The leafy part is of a thin texture, so that the veins *are easily seen.* The veins run alternate, whether on the mid-vein, or on the side-veins; their branches never reach the margin, and the higher branch bears fruit. If the cover resembles the circumference of a semi-circle, and has a slit in it, like the Shield Fern (Lastrea), it is not fixed at the slit only, but longitudinally. The stalks are sometimes semi-transparent. They are also very frequently of a reddish cast, never half so long as the frond, with a broad flat base on one side, and semi-circular on the other. The scales are of a dark, blackish colour, and are interspersed over the lower part of the plant. The root is sometimes mistaken for that of the Male Fern. "It has a short perpendicular root-stalk, black externally, with black root fibres; and the tufts or bases of the leaf-stalks, which compose the greater part of it, form a very acute angle with its axis, while those of the Male Fern extend outward at a more open angle." (Christison). The trunk or stock often rises above the earth. This Fern will easily be discovered by any one though not a botanist, if he carefully notice how extremely fragile it is, and how it withers almost immediately upon being gathered. Its height varies from one to three feet and upwards, and its favorite resort is in moist and warm woods, though we find it in open moors, and under wet hedge-banks.

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* Onoclea sensibilis, which Babington says is naturalized near Warrington.

The Brake (Pteris) was called by the ancients the Female Fern. They do not seem to have noticed this plant. Parkinson perhaps alludes to our species, when he describes two varieties of what was then designated the Female Fern, which he says had not formerly been observed. These he calls "The dented and sharp pointed Female Ferns." * He adds "They grow rather on moist rocks, and the shaded hills." The name Lady Fern was not given because the plant was tender, elegant, and beautiful, but because in certain cases it was thought to be most deleterious and injurious, when taken by the female sex. Linnæus, the great Swiss botanist, first assigned the distinctive name of Lady Fern to this plant. He assuredly showed great taste in giving the appellation to so lovely and charming a child of nature. Hooker and Francis call it *Asplenium Filix Femina*, and Smith, *Aspidium Fil. Fem.*

This may be easily cultivated in a loose and light soil. A shady situation should be selected, where there is an abundant supply of moisture. In wet woods, or under a sheltered hedge, with a little stream purling by, we have the finest specimens. Let us only imitate nature, and we, too, shall have luxuriant plants.

* Filix femina pinnulis dentatis et aculeatis pinnulis.

Genus 2.

Spleen-worts, *Asplenia.* The cover is linear, in a straight line. It is attached, not at a point, but through its whole length. It opens toward the mid-vein, and is not parallel to the sides of the leaflets. These covers are best observed when the plant is young ; otherwise their peculiar character is lost, and they then form round spots on the back of the frond. The mid-vein is generally distinct.

Plate II, fig. 12.

> " In nature's all instructive book,
> Where can the eye of reason look,
> And not some gainful lesson find,
> To guide and fortify the mind ? "

1. Maiden-hair Spleenwort. *Asplenium Trichomanes.* This species is of frequent occurrence throughout Great Britain and Ireland, and grows on rocks, walls, churches, ruins, bridges, and hedge-rows. It is very abundant in this district. Though this is not a very aspiring plant, nor rears its head with crested pride, still, in many of our hedge-banks, where it is thickly matted together, or among the rocks and walls, where it more humbly creeps, it claims the admiration of the lover of nature's productions. It appears much less frequently in the East, than in the West of England. It is not only an European plant, but it is even found in the far distant regions of Japan, and crossing the Atlantic, shows itself in Canada, and the United States of North America. The plant is from three to ten inches high, rising from a black fibrous root. The stalk is dark brown, or black, and brightly polished. The frond is linear, and simply pinnate. The rachis, at first green, afterwards assumes the sombre hue of the stalk. The leaflets are roundish, egg-shaped, blunt at the top, and notched at their margins. The upper surface is dark, dull green, while the under is of a much paler colour. There is scarcely any stalk to the little leaves. Though at first the clusters are quite distinct while

the covers remain, afterwards a dark black mass alone appears enough to perplex the young collector, if he take such a specimen to determine the species. In the leaflets the side-veins are forked, and there are from six to twelve clusters of fruit on each. This Spleen-wort is an evergreen. When the frond begins to decay, the leafy part falls off, but the wiry rachis and stalk remain, a dense and dreary tuft. As the bald head and grey hairs presage the wasting away of the human body, so the accumulation of these leafless stalks betokens the desolating effect of age on this portion of the vegetable world.

The fronds make their appearance in the spring. The spores, invisible to the human eye, are wafted through the air and often settle on some chink in the mortar of an old wall. There a little plant is formed, upward the little curled-in frond raises itself, downward the root insinuates, and hastens the destruction of the building upon which it settles. By far the most luxuriant specimens are gathered on the shady hedge-banks. It is found growing in a perfectly wild state, on the cliffs of Beer, nature's own habitat, and not an artificial position, such as walls, hedges, &c.

This plant has no pretensions to medicinal virtues, but is generally used instead of the true Maidenhair for making capillaire. Old Gerarde says, "The decoction made in wine, and drunk, helpeth them that are short winded. It helpeth the cough, ripeneth the tough phlegm, and voideth it by spitting. The lie wherein it hath been sodden, or laid to infuse, is good to wash the head, causing the scurf and scales to fall off and hair to grow in places that are pilled and bare."

Probably it is designated Maiden-hair Spleen-wort, as bearing a humble representation of the true Maiden-hair. Adiantum capillus Veneris. The classical name was given from two Greek words, signifying to *luxuriate in hair*, because it was considered to "stay the shedding of the hair, and cause it to grow thick." * There is very little difference in the nomenclature of this species.

This Fern is introduced with advantage upon ornamental rock work. As there is great difficulty in extracting the root from walls, cultivators should transplant those growing on hedge-banks. The humble cottager, if he neatly inserts this Spleenwort on banks or rude stones, with others intermixed, may have as beautiful a Fernery as the proudest Peer in the land.

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* Parkinson, page 1051.

Plate II, fig. 13.

> "I'll seek the shaggy fern-clad hill.
> * * * * * * *
> And watch 'mid murmurs muttering stern
> The seed departing from the Fern :
> 'Ere wakeful demons can convey,
> The wonder-working charm away."—Leyden.

2. Black-stalked Spleenwort. *Asplenium adiantum nigrum.* This also is an ornamental Fern for rock-work and walls. Give it pure air, and a suitable position, and it thrives. In a London atmosphere it dwindles away, neither does it like to be a prisoner in a greenhouse. Like a true Briton, it must have its liberty. It is generally distributed throughout England and Wales, but in some parts it flourishes far more than in others. In the vale of the Axe it luxuriates, and distinguishes itself. Its polished black stalk, and triangular frond, here exceed their usual height. In some places the plant is fifteen inches high, generally from eight to twelve. The branches are also branched, and triangular. It has a dark glossy green colour, much darker than the Prickly angular Fern, (polystichum angulare) and though it droops likewise, is altogether of a more rigid texture. In the walls it is much more stunted than in the hedges. The clusters of fruit are linear, and approach the mid-rib of the leaflet. The branches grow alternate on the mid-stem, and the branchlets are alternate also. The leaflets are sharply serrated at their summit, and wedge-shaped at their base. The root stock is covered with hairy down, some of which reaches up to the lowest part of the frond. The roots themselves are dark brown. The stalk is as long as, or longer than, the leafy part. The lobes, or leaflets, have

a mid-vein: the side-veins issue alternately from the mid-vein, either branched or unbranched. The fruit lies on one or both of these branches of the side-veins. The cover at first is white, a line or two long; soon the clusters of fruit thrust off each their respective cover, and a dark mass alone appears. The fronds grow together in a tuft. Though this is not the Parsley Fern, some fancy it resembles parsley. It is certainly much more shining, stiff, and formal and this is not a mere summer resident. When bleak winter comes, and general vegetation ceases, it is visible on our walls and banks. It even retains its greenness and freshness until the end of May, when the child pushes aside the parent, and thin, slight, elegant, rolled-in buds indicate that new fronds are now being formed. The end of autumn comes before the ripe fruit appears and the plant is fully developed. We hardly know where to direct our different friends, as to the best place of procuring thriving and flourishing specimens. They are scattered in tolerable abundance throughout the whole district. We should recommend that they be taken from hedge-banks. It is no little satisfaction, that the beauty of nature has not been destroyed here by the miserable stone walls that so disfigure the fields of the midland counties. It would be a sorry sight to see, in this utilitarian age, our noble fences thrown down, nature's arbour demolished, and flint walls alone visible, in three of the loveliest counties of good old Albion.

This Spleenwort is widely distributed throughout Europe, and North and South Africa. The English Fern collectors have also lighted on it in Madeira, and many of the Islands in the great Atlantic.

The medicinal properties of this Fern were celebrated by older writers. Hoffman considered it as antiscorbutic, and Ray states that it was in use for cough, pleurisy, and asthma. Little is it now valued by modern practitioners.

Gerarde remarks, "That it is called Adiantum (not wetted) * because the leaf, as Theophrastus saith, is never wet, for it casteth off water that falleth thereon, or being drowned, or covered in water, it remaineth still, as if it were dry, as Pliny likewise writeth." This is not true, though

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* This is the signification of the Greek word Adiantum.

the glossy surface may tend to shake off the liquid more rapidly.

Plate II, fig. 15.

> "Before me lay the sea:
> Broad, heaving billows murmured carelessly
> O'er wave-ribbed sands, with lulling peaceful sound:
> While snow-white sea-gulls sailed athwart the sky.
> The air was motionless, till gentle breeze
> Sprang up at sunset; yet huge, lumbering waves
> Rolled in from distant storm, wild, musical,
> Wave-music."—Symington's Harebell Chimes.

3. Sea Spleenwort. *Asplenium marinum.* How vast are the treasures of the deep! Not only have we beneath its surface the pearls, the agates, the emeralds, the jacynths, and the crystals clear as glass; we have vast fields of sea weeds and sub-marine plants, which make the ocean appear like a meadow of crimson tint, and the most lovely hue. There is no drapery so rich and fair, no embroidered muslin or silk of so exquisite a texture, no bright and gay festoons so tastefully and elegantly executed, as are to be found beneath the green sea-wave. Those who have leisure to take a survey of the various marine plants, will not only derive profit but pleasure, and learn the greatness of Him who is the Maker and Preserver of us all. Some of these sea weeds are so small, that their beauty and admirable workmanship cannot be discerned without the aid of a microscope; some so large, that "They have stems which exceed in length, though not in diameter, the trunks of the tallest forest trees; and others have leaves that rival in expansion those of the Palm." * There is no Fern that grows beneath the waters. This Fern, the Sea Spleenwort, is only to be found near the sea, with the exception of the lakes of Killarney in Ireland, and a few other places. In Lancashire and Berwickshire it is recorded to be found some miles inland. On the rocks under the cliffs at Beer and also at Charlton

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* Harvey's Manual of British Algæ.

Bay, it is to be seen in various places. No doubt at Lyme, also, if they were not constantly quarrying out the stone, it would gain a footing. This is a larger plant than the Maidenhair Spleenwort (Asplenium trichomanes). The frond is strap-shaped, or slightly lance-shaped, and pinnate. The leaflets are dark green, stalked, egg-shaped or oblong, serrate, unequal and wedge-shaped at the base. With each notch,* *not each serrature*, there is a line of fructification. The clusters of fruit are rust-coloured, and always separate. The stalk is not nearly so long as that of the preceding species, and is smooth, polished, and reddish brown at the base, if not altogether so. The stalk of the leaflet is generally connected to the rachis, or mid-rib by a wing, so that the frond may be almost considered pinnatifid. The covers are of a light brown colour, and opposite each other. The plants grow in tufts. The root-stocks are black and scaly or downy, and firmly fixed in the fissures and clefts of the rocks. Though the frond is thick and leathery, the veins are clearly apparent. The side-veins fork close to the mid-vein. The upper branch of the vein bears the fruit. The leaflets have frequently a little projection, or auricle on the upper side, and on the lower it appears as if a piece had been cut off. The new fronds begin to arise about midsummer, but the corn harvest is past, and the winter approaches, before they attain to maturity. It is said of the fig, that it blossoms and bears fruit at the same time; so at certain seasons two years' fronds are in full vigour, the younger only differing in having a lighter colour and merely a slight development of its fructification. It is from six inches to a foot long, of small size when exposed to the sea blasts, but much finer and more thriving when in a cavern or sheltered situation. We have gathered fronds between Saunders Foot and Tenby in South Wales, eighteen inches long. The Sea Spleenwort has a great tendency to creep and lie prostrate in an inclement situation; hence it is designated by Bauhin, Gerarde, and Ray, "Chamæfilix marina Anglica" (The English Sea Fern creeping on the ground.) It is stated that "The European range of this plant appears limited to the coasts of Spain and France, together with Great Britain.

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* The notch is deeper than the serratures and generally contains two serratures.

From the Flora Rossica, which embraces the greater part of Europe and Asia, and a large portion of North America, the very name of this Fern is absent."—Newman. It is likewise met with in Barbary, the Canary Islands, and the West Indies. Hooker also adds "I possess specimens from New Brunswick, Nova Scotia, in British North America, and from Rio Grande do Sut, in South Brazil.

Gray states that a mucilaginous extract of it is useful in severe burns and scalds. There would be some difficulty in procuring a sufficient number of fronds to try the experiment.

This is no easy plant to cultivate, for it scarcely ever grows among rockwork unless it exhales the pure sea air. As it is found growing in some few places at a distance from the sea, and as some few cultivators have succeeded, it is recommended to plant it on rockwork with sand or peat intermixed and with a southern aspect screened both from frost and sun. Great care should be taken not to break the roots, when they are extracted from the rocks. It will certainly thrive in a hot house or under a glass.

The localities of this Fern are—

Axmouth; Charlton Bay.

Beer; on the rocks under the cliffs.

Plate II, fig. 14.

"When the Fern is as high as a spoon,
You may sleep an hour at noon:
When the Fern is as high as a table,
You may sleep as long as you are able."

4. Wall Rue Spleenwort. *Asplenium ruta muraria.* This is a small plant an inch or two high. Newman considers it as belonging to a distinct genus, Amesium, because the ultimate subdivisions are without a distinct mid-vein. This plant no doubt received its name from its resemblance to rue. It is to be found on almost every ruin and old wall, and "like our half-domesticated birds, the sparrow, the swallow, and the martin, seems to have

deserted its native wilds, and to have taken its residence among the habitations of men." * Though growing in the moist clefts of rocks and even on their perpendicular faces, it is much more frequently found on decayed walls. The frond is bipinnate (doubly divided) at the base and pinnate, (simply divided) at the tip. The leaflets are diamond-shaped, oblong, or egg-shaped, with the upper part toothed. The root is dark brown, whence many fronds arise thickly crowded together. The plant is dark green, rather of a blueish cast, and the leaflets are stalked. There is no distinct mid-vein to the upper leaflets, but a series of veins arise, which are sometimes branched. As many teeth or notches as there are on the tips of the leaves, so many, for the most part, are the veins or their branches. The clusters of fruit are from two to five. The covers are jagged or uneven at their margins, the leafy part is triangular, and the branches often consist of three leaflets. The stalks are wiry, and, *at the base only*, dark brown or black. The roots are dark and fibrous, penetrating deep into the mortar, and difficult to be extracted. It is especially fond of brick walls. The favourite part of the wall, whether stone or brick, on which it perches, is just under the coping. There we find the diamond leaves and spider's cobwebs fondly embracing each other. The young botanist, if he wishes to discover the genus to which this fern and some others belong, must be careful not to wait until the fructification is too far advanced. If he does so, he will find to his cost nothing but a dark mass of fruit behind the leaflet, and the cover, which is linear (a straight line †) *the characteristic of a Spleenwort*, vanished out of sight. Herein this plant is different from the preceding, in which one line of fruit never crowds upon its neighbour.

This is not only a common plant in England, but is widely distributed throughout all Europe, and temperate Asia. It has also been found in certain parts of North America, in North and South Africa, and Northern India. In the West of England it grows far more abundantly than in the East.

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* Newman.

† This is true in all but the Lady Ferns, where it is a curved line.

"Wall Rue," says Gerarde, "is good for them that have a cough, that be short winded, and that be troubled with stitches and pains in their sides." "It is commended against ruptures in young children, and some affirm it to be excellent good, if the powder thereof be taken continually for forty days together." Some modern writers have stated that it is demulcent and diuretic.

There is little difference as to the classical name given to this plant. Newman, as stated above, places it under a different genus, and designates it Amesium ruta muraria. Parkinson states, that it is the white Maidenhair of Theophrastus, and names it Ruta muraria or Salvia vitæ. In his explanation of the word salvia, he remarks that that word was given to a plant, "because it makes men safe (salvos) and sound in health, and the Latin versifier from hence took his occasion to say,

> "Cur moritur homo, cum salvia crescit in horto?"
> Why does a man die, when the salvia grows in the garden?

Whosoever wishes to have a perfect collection of the "Ferns of the Axe," and therefore desires to cultivate this plant, must be careful, as has been so often suggested in the case of others, when he transplants it, *not to break the roots.* Let him imitate nature, make an artificial coping at one part of the rockery, put old mortar and brick close to the coping, and there place the Wall Rue Spleenwort.

Genus 3.

Scaly Spleenworts. *Ceterach.* Clusters linear, straight. Covers upright, generally on the uppermost branch of side-veins. Side-veins united. Back of frond covered with chaffy scales. This genus is remarkable for the side-veins not remaining distinct from each other, and for the chaffy scales on the back.

Plate I, fig. 16.

" Great Dioscorides relates,
If pluckt in open weather,
This herb a swollen *spleen* abates,
Nay, if for forty days, saith he,
You drink it steep'd in vinaigré,
Removes it altogether.
Ye *spiteful* souls, its virtues try,
One thing well nigh I had forgot,
That when the vinegar you buy,
In using, make it boiling hot."
Quincy, Pharmacopæa Officinalis, 10th Edition,
MDCCXXXVI.

Scaly Spleenwort. *Ceterach Officinarum.* Though this is thickly scattered on almost every old wall in the northern and midland parts of the County of Somerset, it by no means luxuriates in the district of the Axe. It is rather partial to lime stone. The frond is deeply divided, but not sufficiently to make distinct leaflets. The divisions or lobes are bluntly rounded, and not in the least notched. Many fronds three to five inches long arise from the roots. When the first buds begin to appear, they assume a glossy white colour. The lower surface is covered with thick shining scales. No other Fern growing in the neighbourhood in any way resembles it. The scales at first are white, afterwards brown, and when seen under a microscope, appear to be beautifully net-worked. The lobes are alternate, rarely opposite. They turn upward when old, and expose their fructification. The fruit only appears when the fronds are aged, and then bursts through the scales in oblong, transverse masses. It seems questionable whether there be any real cover to the clusters of spores. Hooker says that there is—that Ceterach is now found to possess a narrow involucre (cover) like that of Spleenwort (Asplenium). All seem to allow that there is a kind of ridge as thin as the finest muslin or gauze, which is to be found close to the veins on which the clusters lie. Nature does not require the same perfect covering for the bags of spores, as the chaffy scales perform the same part. The fronds grow in tufts, and are thick and fleshy. Most Ferns, if not perfectly transparent, are not what we should style opaque, as is the case with this. The stalk is short and scaly. The roots, though not long, force their way into the mortar or crevices of the rocks, to which they firmly adhere. As the plant generally grows on limestone, we are surprised that it has not been found at Charmouth or Lyme. Being rather fleshy, it is difficult to discover the veins. The mid-vein rises from the lower corner and bends its winding course to the middle of the highest part of the lobe. The side-veins rise alternately, and fork once or twice successively, and intersect each other. The clusters are always on the highest branch of each, opening towards the top of the leaflet or division, except in the case of the lowest branch of the lowest side-vein, which often has fruit also: then the covers of the clusters open towards the mid-rib of the frond. If other English Ferns were found in a fossilized state, it is very improbable that this would be discovered. Much water causes it to decay. It is generally found on a dry rock or wall. Larger specimens are however gathered in places not exposed to the mid-day sun. The upper surface of the plant is of a dull green colour with a shade of yellow. In its young state, it is curious to see how the alternate divisions of the curled-in fronds, like the teeth of a rat gin, exactly fit into one another.

This is rather a scarce Fern, especially in the Devonshire part of the district, and *here only* found growing on *walls*.

In olden times this was in great repute for diseases of the spleen. Dioscorides, mentioned in the verses at the head of this article, was not the only person to recommend it. Parkinson states, "that the herb and root being boiled and taken, helpeth all melancholicke diseases, and the lye that is made of the ashes thereof, being drunk for some time together, helpeth splenetic persons." Vitruvius* says, "that the swine in Candy (Crete) where it grew, by feeding thereon, were found to be without spleens, when, as others that did not eat thereof, had them as the rest."† Hence the name of Spleenwort, Asplenium, from *a*, not, and *splen*, spleen. This was also used as a bait for cod fishing.

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* We presume that this is the great Architect who flourished about 50 B.C.

† Parkinson, page 1046.

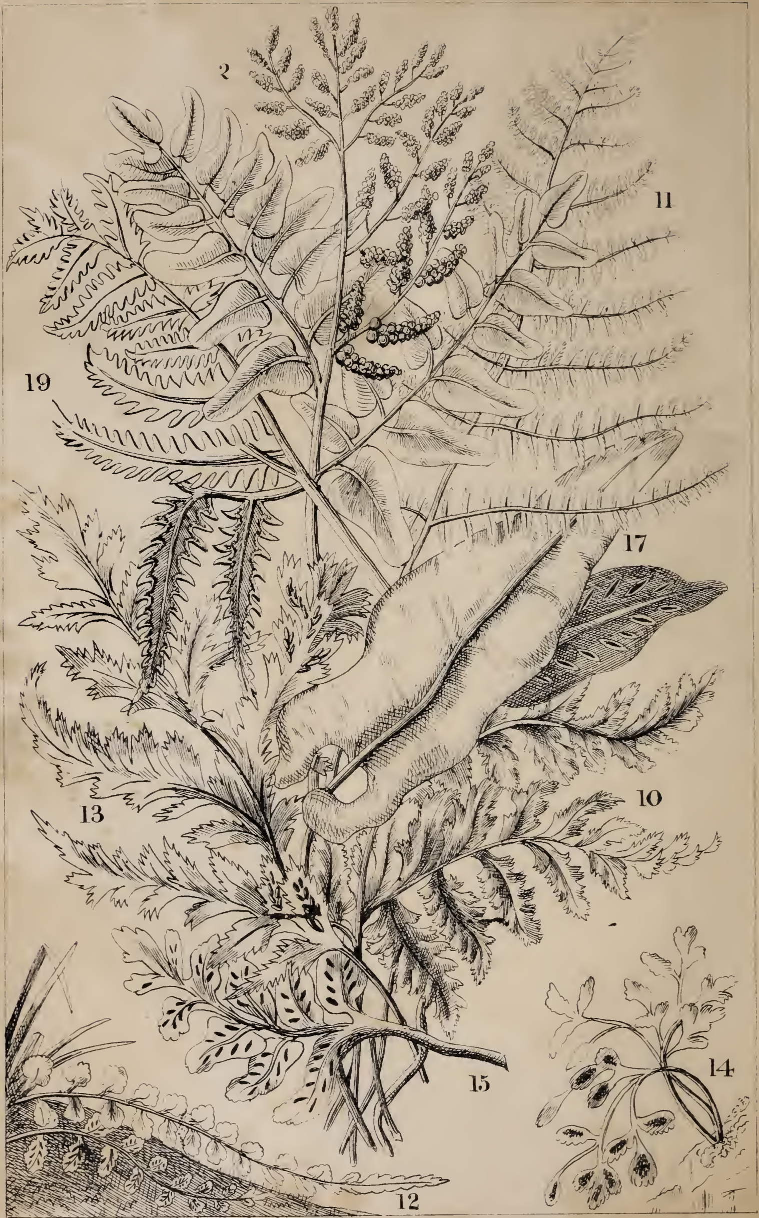
With the ancients, this was the true Asplenium. The moderns generally make Ceterach a distinct genus. Smith called it Scolopendrium Ceterach. Newman names it Notolepeum Ceterach. Hooker, Asplenium Ceterach. Moore, Francis, and Babington, Ceterach Officinarum. The word is of Arabian origin.

The scaly Spleenwort has not been found in the North of Europe or Asia, but is generally distributed throughout the Midland and Southern parts of Europe, and a portion of Asia, and in the North of Africa. Somerset is one of its favourite English counties, and it grows at Somerton, and other towns where the blue lias prevails in the greatest profusion. It is said to be an evergreen, but this is not true, for we have in the winter season searched the walls of the town mentioned, most diligently, and not found a single plant.

Some little pains must be taken to ensure success in the cultivation of this species. If in a rockery, old mortar should be placed among the stones where it is to be planted: if in a greenhouse, there should be a mixture of peat or loam, limestone, and old mortar. Let there be no stagnant water, nor a very great supply of fresh water. If possible, a southern aspect should be avoided.

The localities of this Fern are—

Chaffcombe; walls near Avishayes.
Chard; common on old walls.
Chardstock; Fordwater bridge and Wooden Farm.
Churchstanton; on the churchyard wall.
Colyton; on a wall in the road to Seaton.
Combe Saint Nicholas; } on old walls.
Crewkerne; }
Membury; Challenger, and on a ruined house near the church.
Offwell; Wilmington.
Shute; old Manor House.
Stockland; on a wall near Ridge.
Uplyme; the churchyard wall.
Wambrook; Farm-house garden wall.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Genus 4.

Hartstongues. *Scolopendria.* Clusters and covers in pairs, one seated on the lower, and the other on the upper branch of each side-vein, and opening to face each other. For examining plants of this genus, neither should too young plants be selected, for then the two covers fold over each other, nor should the plants be too old, for then the covers disappear, and the two lines of fructification are in one confused mass. In the intermediate state, the two covers are apparent to the natural eye, Plate II, fig. 17. By making a transverse section of the fructification when young, and by microscopical inspection, it will be observed that the two covers fold over each other, and that there are also two masses of fruit. This is a genus of which only a few species have been found throughout the whole world.

Plate II, fig. 17.

"This herb, if Pliny saith aright,
Doth cure the Scolopendra's bite:
From this its name is taken.
But, like the famed Mandragora,
Its use and name have passed away
From the Materia Medica—
Time hath the fable shaken.
Truth's dicta time doth never shake—
Thus when you observation take
Of its elongate form and make,
The Hartstongue doth appear
And when you note its sporules wide
Arranged upon the under side,
Like legs to centipede supplied,
The Scolopendra's clear."—Gilbertus Cambrensis.
Epigrams, No. 27.

Hartstongue. *Scolopendrium vulgare.* This Fern is very abundant in this district, and grows profusely on neglected walls and hedge-banks, as well as in old wells. Those growing on walls, and in exposed situations, are of a yellowish colour, much more stunted, stiff and leathery, while those in damp and shady situations are of a darker and more polished verdure, drooping and spreading most gracefully in lengthened and elegant tufts. This is a very handsome Fern. In the summer months, whether in a wild or cultivated state, what a striking contrast is presented when the rich, glossy foliage of the Hartstongue is blended with the soft, lax, drooping Prickly Fern, or with the light, elegant, finely and neatly divided Lady Fern. It is, however, quite different from any other British species. It is universally distributed throughout the British Isles and is also found in every Country of Europe, but sparingly towards the North. In North America it is said to establish itself only in New York. No account has yet been given of its growing in Africa, Asia, or South America. In its ordinary form it is strap-shaped, quite undivided at the edges, pointed at the tip, and heart-shaped at the base. The stalk averages about a third the length of the frond, is dark brown at the base, and has lance-shaped or hairy scales scattered over its surface. The fronds vary much in length. In favourable positions they are more than a foot long. With regard to the covers of this Fern, it cannot fail to strike a man of the dullest apprehension, with what consummate skill and exquisite proportion they are adjusted. In every instance the lowest branch of the upper side-vein, and the highest of the next lowest, are placed exactly at such a distance as to admit of the double line of fruit and the pair of covers. The parts are so nicely arranged, so well balanced, that they are not a hair-breadth nearer or further apart than is requisite for the organs of fructification. There is no need of a glass to aid in making these observations. If we merely hold the leaf to the light, and direct our vision to the parts, we shall not fail to behold this beautiful organization. The covers are at first white, afterwards rusty brown. When the clusters become old and have thrown aside the veil, they form one long confused black mass. The fructification scarcely ever appears in the lowest part of the frond. The roots are black, stout, and very long. The root-stock is blackish, tufted, scaly, spherical, or sometimes like a carrot, spindleshaped. The leaves have a strong and thick mid-rib (it can hardly be called a rachis, much less a mid-vein) from which the side-veins start, and afterwards fork twice or thrice without reaching the extremity. Moore says, "that they terminate just within the edge in a club-shaped apex." In the month of April we may look out for the young frond, which appears perfectly upright, with its summit curiously rolled or coiled together, as is the case with most Ferns. As it grows older, it humbles itself and becomes horizontal. At last, as if the trials of the world were too much for it, it hangs down its head and is quite pendulous. It comes to perfection in September, and during the winter months, when almost all the green foliage is gone, the eye is refreshed by beholding this plant and the Common Polypody adorning our hedge-banks in great luxuriance. It alone appears shabby and shows symptoms of decay, when the spring is returning, and the wild violets, harebells, and primroses are adorning our hedges. When the spring is still more advanced, and the herbage is thickly set together, the young, erect, light green fronds, with their curled-in summits, appear through the bushes. This may not be noticed by the heedless passer by, but the naturalist cannot take his walks abroad without observing a plant of so beautiful and lovely a character, even in its earliest stage of existence.

The Hartstongue, when bruised, emits a nauseous smell. It is the Phyllitis of Ray and all other botanists. It was formerly considered very valuable for medicinal purposes. Dioscorides asserts, "that when drunk in wine, it is a remedy against serpents' bites or stings." Ray mentions it "as a good medicine in convulsive disorders." Older writers ascribe to it the power, not only of relieving the spleen and liver, but "all other griefes proceeding of stoppings whatsoever." We learn from the Flore Francaise, that it is used in France as an astringent in cases of diarrhœa and hæmorrhage. Our older English physicians ascribe to it a similar healing power. At the present day it is used in country parishes for cuts and sores, burns and scalds.

There is little difference now in the classical name given to this Fern. Newman calls it Phyllitis Scolopendrium.

Linnæus first altered it from Phyllitis to Asplenium Scolopendrium and Withering adopted the same name. All others designate it now Scolopendrium vulgare. The common name given to it in France is "Langue de cerfe," Hartstongue.

Scolopendra, from whence Scolopendrium is derived, is the scientific name of a Millipede, or Thousand-legs, an insect with which most persons are very well acquainted. The Fern was given this name because some fancied that the covers and fructification of this plant resembled these insects.

Here there is no difficulty as to cultivation. As generally the finest plants are found in moist, shady, hedge-banks, the same result may be expected, if due regard be paid to the course which nature points out. If placed in rich soil in a greenhouse, varieties will be produced, and the plant will depart from its ordinary form.

FAMILY IV. MAIDENWORTS. *Adianteæ.*

Covers linear, either parallel to the edge of the leaflets or *apparently* formed by their bent-back edges. This family contains the true Maidenhair, Adiantum capillus Veneris, which is not one of the Ferns of the Axe.

Genus 1.

Hard Ferns. *Blechna.* The covers are parallel to the edge of the leaflets. The bags of spores lie in a long straight line between the mid-rib or mid-vein, and a vein somewhat parallel to the mid-vein. This vein is connected with the mid-vein by transverse lines. This genus is distinguished from the rest of the family in not having the edge of the leaflet bent back when fructification is formed. Thirty-one species of this genus have been discovered, though we have only one in Great Britain.

Plate I, fig. 18.

> "Oh, mickle is the powerful grace, that lies
> In plants, herbs, stones and their true qualities:
> Nor nought so vile, that on the earth doth live,
> But to the earth some special good doth give:
> Nor aught so good, but strained from that fair use
> Revolts from true birth, stumbling on abuse."
> Shakespeare.—*Romeo and Juliet.*

Northern Hard Fern. *Blechnum Boreale.* This plant has both a barren and a fruit-bearing frond. It prefers the north side of hills, and hence the name. It appears to the eye much like a two-edged comb, the teeth of which are much wider and coarser in the barren than the fertile frond. The teeth also instead of being uniform in width, taper at the extremities. The fertile fronds are nearly twice as high as the barren ones, and vary from twelve to eighteen inches. The leaflets are a little wider towards the base, and the back part of those which are fertile is covered with fruit. These latter also become more and more remote from each other as they approach nearer the base, and in both cases the leaflets are alternate. The stalks, too, vary. In the one they are long, with a few rudimentary teeth interspersed, smooth, glossy, dark brown, having a few fine scales; in the other they are short, greenish brown, and more densely covered with scales. A tuft of these fronds is spread in a circular form. The outer ring consists of the barren and the inner of the fertile fronds. The latter die before winter sets in, while the former remain green and fresh until the early spring. It might almost be imagined that there are here two distinct Ferns, as one kind appears so much taller, more graceful and not ashamed to hold up its head; while the other is nearly prostrate, not so finely divided, and though of a bright green colour, still seems to indicate its inferiority. At first the covers are white, in a long uninterrupted line, lying upon a longitudinal vein, which is situated about mid-way between the mid-vein and the margin. These afterwards bend back, open towards the mid-vein, and burst asunder in patches. This is much more clearly seen, if we select for inspection a plant sparingly fruited, and having the widest pinnules that we can find fruit-bearing. When the fructification is mature, as it is in August or September, the covers become light brown and ragged. The side-veins of the pinnules of the barren plants fork between the mid-vein and the edge, and never unite, but end in a knob. The mid-veins are generally transparent. The root is black and wiry, the root stock tufted and downy. Though the plant resembles a two-edged comb, it would not be a useful comb, as the leaflets are generally curved like a hook, especially in the fruit-bearing fronds. The Hard Fern makes its appearance in May, and sheds its seed (spores) in September, when the fertile fronds disappear, while the barren ones remain through the winter.

This plant is scarcely ever met with in a chalk soil. It prefers gravel, or even stiff clay, on which this is almost the only Fern that thrives. It is ornamental for rock-work, and should be so planted as to face the North, for which aspect it shows a decided preference. It delights more in the damp shades and chilling blasts of Boreas, than it does in the bright sunshine, which covers the rich vales of the Axe and its tributaries with a golden yellow, and a luxuriant sweet green verdure. Let not this child of nature be despised because he loves to dwell in the bleaker and more chilling regions of our delightful neighbourhood.

Parkinson furnishes us with an accurate description of this Fern. He calls it the Smaller Rough Spearwort. Lonchitis aspera minor. "The divided leaves" of the barren frond "are each separated from others, but not fully to the middle rib. In the middle of those outer leaves rise up other bigger and thicker stalks of the narrower leaves, like unto them, but fully separated and so finely dented about the edges, that they seem curled with brownish spots or scales on the backs of them, as in other Ferns." He also adds that it is called by "Cordus and Thalius, Struthiopteris, as if you would say the Ostrich Fern for the fine wings of the middle leaves." "This" he also adds, "is called the Foxen Fern by many persons of this land." "The dried leaves taken in vinegar is held to be good to dissolve the hardness of the spleen, and the green leaves to be singular good for wounds, and to keep them from inflammation."

Various names have been assigned to the "Hard Fern" by different authors. The very old writers called it Lonchitis aspera minor, the Lesser Rough Spearwort. Linnæus changed it to Osmunda Spicant. Withering, Newman, and Moore, to Blechnum Spicant. Francis, Hooker, and Babington, Blechnum Boreale, (Northern Blechnum) which seems the preferable name, as it generally grows in a northern aspect. Blechnum is a Greek word used by Dioscorides for an unknown species of Fern.

All Europe claims it for its own. It has been found in North Africa, and probably North America. In some parts of our neighbourhood, the lower parts of the hedge-banks are quite matted with the barren fronds, and it requires some little strength to pull up the black, tough, and wiry roots of this plant with its tufted and hairy root stock.

Genus 2.

Brake. *Pteris.* Bags of spores in a long straight line covered by the bent-back unbroken edge of the leaflets. This differs from the Hard Ferns, Blechna, in having the edge bent back to form a covering, and from the Maidenworts, Adianta, (none of which grow in this district) in having the bent-back edges in an unbroken line. The fertile leaflets of this genus have a thin, white, membranous edge, which is the part of the leaf that bends back and forms a cover of the clusters of fruit. These clusters are seated on the extremity of the green part. "An inner cover is also present in ours and some other species, which many botanists consider a necessary character of a Pteris, and that its absence or presence might serve to divide the genus into two."—Francis. There are many foreign Ferns that belong to this genus.

Plate II, fig. 19.

"The heath this night must be my bed,
The bracken curtain for my head,
My lullaby the warder's tread,
  Far, far from love and thee, Mary;

To-morrow eve, more stilly laid,
My couch may be my bloody plaid,
My vesper song, thy wail, sweet maid!
  It will not waken me, Mary."
Scott's *Lady of the Lake*, Canto III.

Brake or Bracken. *Pteris Aquilina.* This Fern abounds on all our Commons and uncultivated ground. It affords the agriculturist considerable trouble to exterminate it in consequence of its creeping under-ground stem. It is said that Linnæus, the great botanist, came from Sweden to England to see the Furze, among which the Brake is constantly intermingled. When the great naturalist beheld its bright yellow flowers covering acres of ground, he is described as falling down on his knees in humble adoration. Neither is this Fern destitute of beauty and elegance. This, as well as the Flowering Fern, *Osmunda Regalis*, resembles the Tree Ferns of tropical climates more than any other. It diminishes the barren aspect of our heath-fields and downs. Brake is so common that it hardly needs any description of its form. Suffice it to say, that it stands up like a tree with branches on each side, which are again and again divided into other branches. The leaflets are linear, the upper ones generally without, and the lower ones with deep notches on their edges. The terminal leaflet of the toothed pinnæ has the appearance of a dagger. When the frond first begins to unfold itself, the stalk divides into three branches, and not only is the highest point of each branch rolled-in, but also the leaflets at their extremities. One of these three branches rises upwards, while the others spread right and left. The highest again and again branches according to the luxuriance of the plant. The branchlets of the branches are often again branched, and thus it becomes tripinnate. The leaflets vary. Sometimes they are toothed or pinnatifid, and at other times not in the least degree divided on their edges. They are also connected to the mid-rib, not by the stalk, but by their whole base. Hence they assume the form of a wedge. They are opposite below, alternate above. The veins are transparent. In the mid-vein are some brighter spots which appear like little stars, from whence issue the side-veins, which fork twice or even more in the lower part, and once in the higher part of the leaflet, and then reach the green margin. On this margin is a vein running lengthways, by which the others are connected together. The fructification is attached to this. From the upper surface edge of the green part proceeds a thin white cover, and from the lower surface edge another white similar extension, on which the clusters of spores lie. What a beautiful provision is here made for the propagation of the plant! The leaf must alter its colour and become thin and tender, that it may cradle its child with every care. The branches or pinnæ of Brake are opposite. The stalk at first is downy, afterwards smooth, having its lower part and what is underground of a dark brown colour. It is quite as long as the branched part or frond. These mainstalks have sometimes a sharp edge, and wound the hand severely if plucked incautiously. There is a creeping rootstock (rhizome) which is brown or blackish, about the thickness of a man's little finger, from hence the plant rises up at intervals, as in the case of the Polypody. In the downs it is comparatively a stunted plant, but in the wet woods and shady places, it not unfrequently reaches the height of nine or ten feet, a very graceful and elegant object. What with its wide-spread branches and light green colour and feathery foliage, it surely deserves a place among the beautiful works of nature. The Bracken is very susceptible of cold. In autumn, a severe frost soon turns it to a deep brown colour and makes it wither. In the spring, a whole crop is cut down, like the potatoes, by the sharp and piercing north easterly wind.

Brake is to be found in every country in Europe and it is a question whether the species of Pteris found in Russia, Africa, New Zealand, and the Sandwich Islands, is not identically the same. Great indeed is the variation of form. But this may be ascribed to the difference of soil, clime, and position. Hooker says that the edible Fern root * of New Zealand is a mere variety of our Common Brake. That used to be the favourite food of the New Zealanders and was celebrated in song. The young women in laying before

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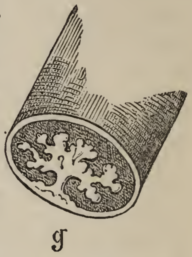
* Pteris Esculenta.

travellers baskets of cooked Fern-root chanted, "What shall be our food? Shall the shell-fish and Fern-root? That is the root of the earth: that is the food to satisfy a man." Dr. Clarke shows that the root, if properly prepared, would be preferable to spinach and have a more beneficial effect on the digestive organs. It is however found, that though life may be preserved, men would not gain much animal strength. Pigs are fed upon the roots boiled down to a mucilaginous mass. The root, when cut obliquely, presents a kind of representation of the imperial eagle, and hence the name of *Pteris Aquilina* or Eagle Brake. Young persons, in cutting the same roots, observe a fanciful letter of the alphabet, which they take for the initial of their lady-fair. Nay, there is a great similitude to an oak tree, as appears from the woodcut annexed, made from a drawing of a section of the brake. Dr. Johnson, in his "Terra Landisfarnensis" says, "The mark is also compared to the impression of the De'il's foot." Common as this Fern is, and varying as it does from most others in not confining itself to hedge-banks, or to the retreat of damp shady woods, it is possessed of some great and important virtues, and next to the Male Fern, is the most valuable of all. A tolerably pure alkali may be obtained from this plant. In many parts of England, the ashes mixed with water are formed into balls, which are afterwards heated in the fire, and used to make lye for scouring linen. Lightfoot says, "It is an excellent manure for potatoes, and if buried beneath their roots, never fails to produce a good crop." Where coal is scarce, it is used for heating ovens and for burning limestone, for it yields a very intense heat. It is so astringent, that it is sold in many places abroad for dressing chamois and leather. It is an excellent litter for horses and cows, and in Invernesshire the poorer classes thatch their houses with the leaves, which form a durable covering. Newman observes, "It would appear



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* Parkinson says this is a fable.

that formerly it was in use in England for the same purpose, for by a statute for regulating the price of labour in England, dated 1349, being the twenty-third year of Edward III, we find it enacted that every tyler or coverer with straw or fern shall receive 3d. per day, and their servants or knaves 2d., and their boys 1½d. per day." It is also said that a decoction of the ashes of this and some other Ferns stimulates the growth of hair, and hence they have been called capillary plants. This plant is not unknown to the Scottish poet,

"Far dearer to me yon lone glen o'green Brechan,
Wi' the burn stealing under the lang yellow broom."

As in some places the plant attains a considerable height, it offers a bracken curtain to the deer for his evening couch, and has concealed many an armed Highlander in days of old. Sir Walter Scott, in his "Lady of the Lake," describes Roderic Dhu's men, as springing from the bracken at the sound of the whistle of their chieftain.

"On right, on left, above, below,
Sprang up at once the lurking foe,
From shingles grey their lances start,
The bracken bush sends forth the dart."
Scott's *Lady of the Lake.*—Canto V.

This is the Female Fern (θηλυπτερις) of Theophrastus and Dioscorides. It had this appellation because it was considered so injurious to the female sex, that, if they walked on it,* much more if they took it inwardly, it would be attended with very bad effects. Linnæus first transferred the name to another species. Pteris Aquilina is the designation now adopted by all modern writers except Newman, who calls it Eupteris Aquilina.

A description has now been given of twenty-one species of Ferns, all Ferns of the Axe. In the subsequent article an attempt will be made to point out many leading varieties of these interesting plants. An ancient Roman poet has said,

"Neglectis urenda filix innascitur agris.—Horace."
The fern grows to be burnt in neglected fields.

Sorry should we be if such were to be the fate of all the Ferns of the Axe and its tributaries. We view them as one of our greatest ornaments. Our woods, our hedge-banks and our shady lanes derive much of their beauty from these elegant plants. Not only in the spring, but throughout the greatest part of the year, they add a softness and grace to the scenery, and draw the contemplative mind to admire the works of our great Creator. Surely the man must be devoid of taste who has no eyes to admire not only the humbler of these plants, which grow among our walls and bridges and ruins, but also the Lady Ferns and the Royal Flowering Ferns, which so abundantly adorn the neighbourhood of the Axe. Beautiful as the river and its branches are, which wind their course through our lovely vales; magnificent as our views are, which exhibit Dartmoor on the one hand, and the Somersetshire hills on the other; interesting, too, as this country is in an historical point of view, whether we turn to the Roman or to the ancient British remains or to the troublous times of the Commonwealth; we also beg to contend that the lover of nature may likewise find a rich treat, if he pay attention to the flowers and shrubs and ferns which grow in such profusion in this locality. In the metropolis we have artificial grottoes and arbours and rockwork covered with various plants, on which the water is made to bubble and trickle down. Here we have the glorious reality. Here we have the Great Artist Himself at work. Behold our shady lanes covered with branches of trees and woodbines intermixed—nature's magnificent arbour. Mark the rockwork close to our streamlets, covered with mosses, lichens, and ferns, down which the water splashes and gurgles so sweetly and so grandly. May we not conclude by saying—

"Nature boon
Poured forth profuse on hill and dale and plain
Both where the morning sun first warmly smote
The open field and where the unpierced shade
Imbrowned the noontide hours."

VARIETIES.

As so much attention has lately been directed to the varieties of Ferns, it seems desirable that some of these should be noticed. Our readers must not be disappointed if they find unusual appearances not explained. There is scarcely any thing in the vegetable world that is always uniform. Blight, insects, poverty or richness of soil, great drought or rain, produce marvellous changes in particular plants. These things are so local and confined to certain seasons, that it would be impossible to describe what may happen. All that will be attempted is to mention some leading and striking varieties or monstrosities.

Great is the difference between a variety and a species. Man is a species of the order Being. A white, black, or copper-coloured man is a variety. The species man invariably differs from all other earthly beings in the possession of reason. There is no such invariable difference between the varieties of men. The white man gradually becomes darker and darker as he approaches the tropics, until he becomes the sable African or Indian. Just so with regard to the vegetable creation. One species differs from another under every circumstance and aspect. Not so the varieties. These so gradually merge one into another, that the line of demarcation cannot be distinctly seen. If we see the extreme varieties only, we should pronounce them distinct species, but when we see how they shade one into the other, we cannot hesitate to pronounce that they are one and the same species. Besides varieties, monstrosities also occur. In 2 Samuel, xxi, 20. mention is made of a man that had on every hand six fingers and on every foot six toes." This we should consider an abnormal or unnatural appearance of man. Just so our Ferns. From some particular position or injury, they assume unusual forms, which are commonly denominated monstrosities. The varieties generally occur, to a considerable extent, in a particular locality. Only single instances of monstrosities are found, and those only in one plant, and sometimes merely in part of a plant. With regard to varieties, we may also add that they continue constant in the same form as long they live. If, however, their spores (seeds) be thrown into the earth, especially when placed in a situation where the contrary form prevails, then the plant often becomes changed to its original type. How are those choice apples prized which are placed on the table for the dessert, and for which the gardeners charge an exorbitant price! Yet the pips or seeds of these often produce a crab tree, whose fruit is most despicable, hardly fit to make the sourest vinegar.

We will now proceed to describe some of these unusual appearances, or varieties of the species of Fern.

The reader is requested to understand that all varieties to which the letter M is appended have been in a great measure, if not altogether, discovered as growing in the neighbourhood, by Mr. Moly of Hawkchurch. Through him many choice and curious plants have been found, and any person desirous of seeing the Ferns of this vicinity, cannot do better than repair to his house and behold in his garden, what our hedge-banks, walls, woods, and bridges have produced. Whatever place is named at the end of an article must be understood as the locality of the variety that has been described.

ADDERSTONGUE. *Ophioglossum vulgatum.*

See page 18.

The fronds are sometimes furnished with two, three, or four spikes. These have been found in several parts of the district.

COMMON POLYPODY. *Polypodium vulgare.*

See page 27.

1. Serrated Common Polypody. *Serratum.* This variety differs from the common form in having many leaflets coarsely serrated. The large, deep, blunt, coarse teeth of a carpenter's saw may be considered a representation of the edge of several leaflets belonging to this plant. Sometimes the teeth are also serrated, and therefore we may call the plant biserrate. Some of the clusters of spores are not perfectly round and have a tendency to become oblong. This plant is not uncommon.

2. Finely Serrated Polypody. *Serrulatum.* This Fern has on its margin very fine and minute teeth, resembling those of a cabinet-maker's saw. In other respects there is no difference between this and the ordinary appearance of the Common Polypody.

3. Notched Common Polypody. *Crenatum.* This Fern is wider than the usual forms of the Polypody. It may be described as egg-shaped, and not lance-shaped. While, in its common aspect, a frond eight inches long is two and a half inches broad in its widest part—here a frond of the same length may at one place be five inches broad. The lobes or notches of the leaflets are not sharp-pointed, as the teeth of a saw, but rounded, and are also waved. Some of the clusters are not round, but oblong. This has been found at Hawkchurch. M.

4. Forked Common Polypody. *Bifidum.* Some of the lobes are forked at their ends, especially at the lower part of the frond. In some luxuriant specimens they are three-forked or even more divided, but this happens irregularly and unequally, while their extremities are at times blunt and at times sharp-pointed. The mid-vein separates into each fork, and if it be fertile, the clusters of fruit are on each side of the separated mid-vein. This variety is occasionally found in most parts of this district.

5. Auricled Common Polypody. *Auritum.* At the base of the segments or lobes on the upper side near the mid-vein is a little round lobe or auricle. In our plants we do not find it on every segment, but chiefly on the lower ones.

The localities of this Fern are—
* Combe St. Nicholas; near Wadeford.
Dalwood; near Sunnyland.
Hawkchurch; Cowse.
Musbury; in the hedge-bank of a wood near Bullmoor.

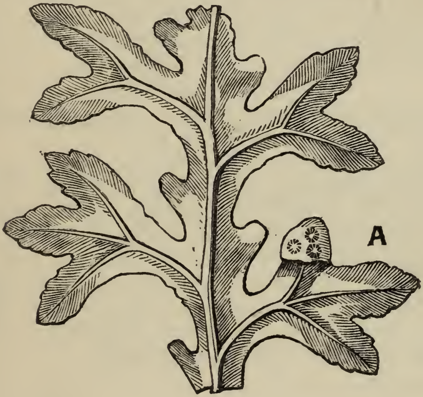
6. Sharp-pointed Common Polypody. *Acutum.* The lobes gradually taper to a point. At the base they are rather broader than in the common form. If a lobe is forked, each fork narrows gradually in the same way. Sometimes the lobes are serrulate, (*i.e.* very slightly serrated). This is not uncommon at Dalwood.

7. Many-formed Common Polypody. *Multiforme.* A single plant of this variety has been discovered on the hedge-bank of a common in Northleigh parish. This is divided into two branches or branched lobes at the summit, with an intermediate undivided lobe. All the lobes narrow gradually to an acute point. The branched lobes have a semicircular enlargement near their base, and seem to be cut, as it were, by a pair of scissors from the middle lobe. One of the lowest lobes of this Polypody is forked at the extremity. All the leaflets are obscurely serrated at distant intervals and in some parts deeply notched. Other plants are sometimes branched near the base or middle of the frond. Sometimes, too, the mid-vein runs beyond the lobes. There is no regularity in the formation of this variety.

8. Margined Common Polypody. *Marginatum.* The frond of this variety has in certain parts the outer skin (epidermis) of the upper or under part of the leaf splitting in an irregular line and shrinking back towards the mid-vein. As after cases of fever there is a peeling off of the skin, so here also the skin seems to shrink from the edge towards the mid-vein without quitting the substance to which it was attached, but sticking up in a line. In the human body it is the effect of disease, but here it is the natural growth of the plant. This is more strikingly exhibited in some varieties of Hartstongue. This specimen was growing at Berry, Hawkchurch. M.

9. Interrupted Common Polypody. *Interruptum.* Here we find some lobes or leaflets shorter than the others and some altogether disappearing, others cut near their ends

into several segments and others forked. There is great irregularity in the plant. A friend remarks that in the early stage of growth it is somewhat variegated. This also was noticed at Hawkchurch. M.



FORKED-AURICLED COMMON POLYPODY.

10. Forked-auricled Common Polypody. *Bifido-lobatum.* Lowe. The only difference between this and the forked variety is that on the upper edge of most leaflets near the mid-stem there is a little round lobe or auricle, as appears in the woodcut at the head of this article. In fact this is a combination of the forked and auricled varieties. Kilmington.

11. Branched Common Polypody. *Multifidum.* This is itself divided, either at the lower part of the frond or near the summit, into what would appear two or more distinct fronds. Our plant, also, is a little interrupted and has some of its leaflets or lobes forked. This was taken from a hedge-bank both from Kilmington and at Combpyne.

12. Compound Common Polypody. *Compositum.* This is a small Fern, having variations peculiar to the serrated, auricled, forked, and other forms. The lobes or leaflets

are crowded, broad, and overlapping at the base. The teeth or segments of each leaflet are longest on their upper edge near the mid-stem and become shorter upwards and are generally rounded at their summit and always broadest at their base. Axminster; near the Lyme road.

SWEET MOUNTAIN FERN. *Lastrea Montana.*

See page 32.

Variable Mountain Fern. *Variabilis*, Woll. This plant has some of its fronds irregular. The irregular fronds are blunt at their apex. The upper pinnæ differ much in growth and length, with the summit of each generally dagger-pointed and their lowermost leaflets generally much longer than those above them. The pinnæ in the middle and lower part of the frond are of normal size without any marked peculiarity. M. Hawkchurch.

MALE FERN. *Lastrea Filix mas.*

See page 35.

1. Deep-cut Male Fern. *Incisa*, Moore. *Affinis*, Newman. The stalk is about a fourth the length of the frond, which is large, broad, and branched. The basal leaflet of the branches or pinnæ have a narrow attachment and no stalk. Most of the other leaflets are decurrent and run into the stem. There is generally a slight auricle at the bottom of each leaflet. The leaflets are narrower, longer, more deeply cut, and more separated from each other than in the common form. The lower leaflets of a pinna have from three to five teeth. The branches of the veins too are more numerous. While the clusters of fruit in the regular plant occupy only the lower half of the leaf near the

mid-vein, these reach much nearer its summit and are arranged in a single row. The scales are yellowish red and do not so thickly cover the stalk. The foliage is, when mature, generally dark green and conspicuous. The rachis and stalk have occasionally a polished purple-brown colour. This is a robust, large, handsome Fern, not uncommon in the neighbourhood, outvying the standard form in its usual aspect. It however assumes the autumnal hue very early and is not an evergreen to adorn our woods and hedge-banks during the dreary season of winter.

2. Chaffy Male Fern. *Paleacea*, Moore. *Borreri*, Newman. As this variety was first noticed in Devonshire, it is not surprising that it is found in this neighbourhood. Its rich, shining, golden-brown scales, and lofty yellow-green fronds, growing densely and compactly in a shuttle-cock form within our beautiful woods, make it an especial object of admiration. Hooker considers it a good representative of the normal or most perfect form of the species. It seems to be Don's *Aspidium paleaceum* of Nepaul, common enough in other parts of India and elsewhere. Most certainly it is a most striking object and should not be passed by without a minute description. The scales, its leading characteristic, are generally bright golden brown, most thickly crowded together, not only on the stalk and root-stalk, but also on the mid-stem of the frond and of the pinnæ likewise, giving the plant a peculiarly beautiful hue. The lowermost scales are broadly lance-shaped; as they rise upward they become narrower and narrower and at last are as fine as the hair of one's head. The lowest leaflet of each pinnæ has no stalk, but for the most part a narrow attachment and is distinct from the rachis. All the other leaflets are decurrent. The leaflets are blunt, serrated at the summit, of an oblong form, toothed or serrated likewise in the sides. The pinnæ are very numerous and near one another, sharp-pointed and forming a very acute triangle. The covers of fruit are lead-coloured, very enduring, kidney-formed, having their margins much bent downwards. The clusters are smaller than those of the regular form. The under surface of the frond is of a paler green colour. This deserves notice, as in the other forms there is no difference.

Newman says, "The fronds are narrow-lanceolate." Moore says, "Broad-lanceolate." Our specimens are truly lance-shaped. In a fine group they are sometimes five feet high. The mid-rib of the pinnæ are more or less tinged with purple and often there is a purple spot at their base. If this variety were placed in some of our wild, neglected spots, especially if the ground be moist, and made an undergrowth to our wooded slopes, this golden coloured wildling would convert naked and unpicturesque hills into the most romantic and lovely scenery.

This form of the Male Fern is found in many of our wet woods; whosoever searches for it, should particularly look out for the golden coloured scales, which so abundantly cover the stalk and root-stock.

3. Curled Chaffy Male Fern. *Paleacea crispa*, Moore. This variety has a broad frond with broad leaflets that overlap each other and curl or undulate so as to form little folds on the surface. It is a large handsome plant of a deep green colour. The leaflets have no stalk, though, sometimes, the lowest have a narrow attachment. It seems to be a subvariety of the preceding variety, as it has the rich golden chaffy scales. This is not uncommon in dense, moist woods, and very shady lanes, where the Chaffy Male Fern abounds.

4. Narrow-fronded Male Fern. *Angusta*, Moore. This is a new variety not before noticed in any of our books on Ferns. The fronds here are peculiarly narrow: if a foot long without the stalk (stipes) they are not more than an inch broad. The leaflets too are very small, not a fourth the size of those belonging to a fine specimen of the ordinary Male Fern. They are also oblong, rather blunt at the apex, generally without a stalk, having only a broad attachment to the mid-stem. Their edges seem not to be the least cut or notched. The stalk and mid-stem of the frond are densely covered with scales. Hawkchurch. M.

5. Unicorn Male Fern. *Cornuta*, Moore. This also is a new variety and is abrupt at its apex and has its mid-stem protruding at its end beyond the leafy part, which appears like a little horn. The lower part of this protruding mid-stem or horn is densely hairy. In other respects the plant

resembles the Chaffy Male Fern (Paleacea). The plant is scarcely bipinnate, as hardly any of its pinnæ have distinct leaflets. Hawkchurch. M.

Curled Male Fern. *Crispata.* This is quite the common form except that it is curled and waved in every part of the frond. Hawkchurch.

DARK-SCALED FERN. *Lastrea dilatata.*

See page 36.

1. Diminutive Dark-scaled Fern. *Pumila.* In describing the parts of a Fern, (page 6) the Dark-scaled Fern, *Lastrea dilatata*, was selected as presenting an illustration of a tripinnate frond. This variety differs from the ordinary form, inasmuch as it is only bipinnate, *i.e.*, no leaflet of any pinna is distinctly branched. The scales are very light, and only faintly darker in the centre. The frond itself has an almost triangular outline. The plant is scarcely a foot high. The leaflets are broad at their extremities and coarsely toothed.

The localities of this Fern are—

* Dalwood ; Dane's hill.

Hawkchurch ; Scatteridge, and in a Wood near the Inn at Lambert's Castle.

Southleigh ; Wiscombe Wood.

* Thorncombe ; Forde Abbey.

2. Dark Scaled Fern of the Hill. *Collina.* This is a very beautiful variety, having a dark green frond, sometimes triangular and sometimes lance-shaped, with a much shorter stalk, scarcely half its length, and thickly covered at its base with dark scales, which have a transparent margin and their very tips almost black. The two pairs of the two lowest pinnæ are triangular: the others linear. The first upper pinnule of the lowest pinnæ is much shorter than the first under one. In every other pinna there is very little difference between the pinnules that are above and below their respective rachis. The lowermost pinnules of the

lowest pinnæ are nearly, if not quite, divided into distinct little leaves, and hence the plant is almost, if not altogether tripinnate. Many of the pinnules, too, nearest the rachis of the frond are either stalked or have a broad stalk-like attachment: the others are decurrent and run more or less into one another. The leaflets have linear segments ending in remarkably coarse blunt teeth, a striking mark of distinction from the ordinary form. If we closely examine the under parts of the leaves, we shall observe that they are thickly covered with minute stalked glands. The covers of the fruit, when seen under the microscope, appear to be jagged, and also fringed more or less with stalked glands. The clusters or sori are generally in two rows on each side of the mid-vein of the leaflets. If the pinnules are almost or altogether divided into distinct leaflets, the divided parts have two rows likewise. The fructification, though small, is abundant over the whole frond. There is another peculiarity, that the stalk is for the most part green, and only purple close to the base. Most of the pinnæ are nearly at right angles to the mid-stem and distant from each other. The lobes of the leaflets are blunt at their extremities, where there are two or three coarse teeth. Whether it be owing to the pure air of the hills or to the inherent character of this variety, it has a more elegant form than any of the other Dark Scaled Ferns. It does not attain to so great a height, neither does it stretch out its arms so widely, still it is prettier in its mode of growth and much more erect with spreading or bending branches. The very coarseness of the teeth, the dark green colour, and the distance of the pinnæ from each other, give it such peculiar grace and symmetry, that the lover of nature should not hesitate to take a long walk to secure to himself a good specimen of the Fern of the Hill.

Newman states, that though he feels a difficulty in giving anything approaching to a satisfactory specific description, still, influenced by a peculiarity which arrests the eye, he is inclined to consider it a distinct species. This variety has been found growing in Shute parish.

3. Narrow-leaved Dark Scaled Fern. *Angusti-pinnula.* Moore. This chiefly differs from the preceding in having

narrower leaflets or pinnules. The pinnules, too, vary in length. A shorter or stunted or imperfect leaflet here or there appears on a pinna. In most cases the fronds of this character were intermixed on the same plant with those of the preceding variety. It seems, therefore, that ours is only an approach to what Moore calls Angusti-pinnula. Shute.

4. Interrupted Dark-scaled Fern. *Interrupta.* This is quite irregular in its appearance and growth. Sometimes a pinna is wanting, sometimes it is stunted and defective, and sometimes the leaflets disappear near the middle, while it is quite regular towards its tip. It appears like a wounded soldier who has lost his arm or leg and yet no scar appears. The shortened pinnæ are jagged or laciniated, and sometimes the leaflets are perfect on one side of the mid-stem of the pinnæ and appear shattered on the other, nay, on that side the leaflets may altogether disappear. This is of the variety collina and of the ordinary size. Hawkchurch. M.

HAY-SCENTED FERN. *Lastrea Fœnisecii.*

See page 41.

1. Interrupted Hay-scented F. *Interrupta.* This, like the preceding, has its pinnæ and leaflets some small and short, and others of the regular form. They are not, however, jagged and laciniated, as is the case in many interrupted varieties, though they may assume a grotesque appearance. The head or higher part of the frond assumes the regular habit of this species. Hawkchurch.

2. Branched Hay-scented F. *Ramosa.* The peculiarity of this is, that it is forked both at the base and summit of the plant, and thereby its elegance and symmetry is destroyed. Monkton Wylde. M.

SPINOUS FERN. *Lastrea Spinulosa.*

See page 44.

Interrupted Spinous F. *Interrupta.* This variety has the egg-shaped transparent scales of the Spinous Fern.

Moore describes it as a variation of the spinulosa tribe, in which the pinnules are irregularly developed, here and there depauperated (much smaller) and in some parts enlarged and broader than usual. Hawkchurch. M.

COMMON PRICKLY FERN. *Polystichum aculeatum.*

See page 46.

1. Lobed Prickly Fern. *Lobatum.* In the Common Prickly Fern there are auricles to many leaflets of a pinna, and these are placed on the side which is most distant from the mid-stem; in this they are only on the lowest leaflet, and there, too, not very visible. This is also a much smaller plant, about a foot high, and has a very narrow lance-shaped frond. It is stiff, leathery, chaffy, and of a yellowish green colour. The stalk is short. The leaflets, except the lowest on a pinna, are decurrent, and sometimes even that one is decurrent also. They are also convex, with their edges bending downwards, and their serratures ending in a prickle. Very few bristles are on the leaflets, sometimes only one on the summit. When a frond is kept in an herbarium of this variety, it is apt to fade and become a very pale green colour.

This is more frequently met with in our locality than the regular form. Most of the habitats assigned to the Prickly Fern, *Polystichum aculeatum*, apply to this variety. This has been found in the parishes of Axminster, Chard, Colyton, Hawkchurch, Stockland, and though not abundant, grows probably, more or less, throughout the district.

2. Irregularly Diminished Prickly Fern. *Dispar.* In this variety, which much resembles the preceding, the pinnæ are sometimes forked and vary in length: thus a pinna two inches long lies between two others that are three inches or in some similar proportion. M. Hawkchurch.

3. Much-cleft Prickly Fern. *Multifidum.* This has the apex of the frond much divided into a spreading tuft of branches. In some cases plants are found only once or twice forked at their apex. Chardstock and Thorncombe.

ANGULAR PRICKLY FERN. *Polystichum angulare.*

See page 49.

The varieties of the Angular Prickly Fern may be divided into two groups consisting of plants with Regular and Irregular Fronds.

1. The Regular are those, which have both the pinnæ and the leaflets proportionately increasing or decreasing.

2. The Irregular are those, which have either the pinnæ or the leaflets, or both, not proportionately increasing or decreasing; thus, a pinna may be short between two longer ones, or branched, or crested at its ends, or a leaflet or leaflets may be very small or stunted between two longer ones of the ordinary size. *(See woodcut of linear variety).*

There are Thirty-nine Regular and Fifty-one Irregular in their fronds.

Regular Angular Ferns.

1. Spear-shaped A. F.* *Hastulatum.* This is an elegant plant having fronds of a narrow lance-shaped form. The leaflets with their distinct ear or auricle are stalked and terminate in a bristle. They are sharp-pointed, small, and if the ear were removed, would be lance-shaped. This auricle is very distinct and in the case of the lower leaflets is separated by a deep incision. The pinnæ and leaflets from not being crowded have a light appearance. The fronds sometimes attain to the height of two feet and at their broadest part to the width of six inches. This varies not much from the ordinary form and may occasionally be met with in all parts of the district.

2. Acute A. F. *Acutum.* This is a tall and handsome plant. It differs from the preceding in having the leaflets more elongated. They are also rather narrow except at the base, where there is a sharp-pointed auricle. The tip of the leaflets is occasionally hooked and the points are bristled. If the leaves are serrate, the tip of each serrature is bristled. As the leaflets are stalked and the pinnæ distant from each other, even the largest fronds of this variety have a light and elegant appearance. Sometimes

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* A. F. is used for Angular Fern.

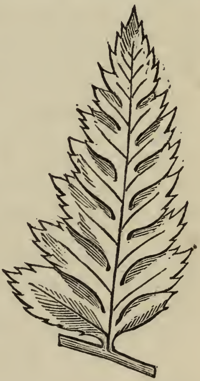
the frond is even three or four feet high. Axminster, Combe St. Nicholas, Kilmington, and Shute.

3. Sharp-lobed A. F. *Acutilobum.* This resembles the preceding. An observant eye cannot, however, fail to notice that its leaflets are more divided, especially those at the base of the frond. The sharp bristle-pointed lobes are very conspicuous. The under-leaflets, too, are longer than the upper ones, especially in the lower part of the frond, which is seldom the case in the Prickly Ferns. The frond is two feet long and triangular. Hence, the lower pinnæ are longer than those above them. The pinnæ are lance-shaped. The mid-stem, both of the frond and of each pinna and the stalk are all intensely covered with scales. In consequence of the leaflets being so much divided, the plant is tripinnate. All the leaflets are lance-shaped. M. Axminster; Chard, at Tatworth; Dalwood, Hawkchurch, Lyme, Seaton, and Thorncombe.

4. Narrow-fronded A. F. *Angustifrons.* This little Fern is not more than nine inches long, and an inch and a half wide, and of a narrow lance-shaped form. More than half of the foliage of the plant found here is covered with clusters of spores, though Moore states, as a general rule, that the upper third is fertile. The leaflets lie close together, overlap each other, and are of the ordinary form. They are small, bristly, and auricled. There is no difficulty in recognizing this variety, as it is the most diminutive of the Angular Ferns. Axminster, near Wyke.

5. Dense A. F. *Densum.* Mr. Moore seems to have given the distinguishing name to this variety, because the leaflets are crowded together, and the rachis of the frond and of each pinna is densely covered with hairy scales. It may be observed that the leaflets are rounded at the summit, with its ear or auricle distinctly sticking out at the base. If the auricle were cut off, they would then be egg-shaped or oblong. The leaflets are also small, stalked, and serrated: the lowermost on the upper side of each pinna is longer than the rest, and divided at the edge into very small but distinct lobes. At the extremity of each serrature there is a short bristle, and these bristles are very conspicuous. The scales of the stalk are not hairy,

as those of the rachis, but broadly lance-shaped, shining, light brown, and transparent. The frond is not so remarkably drooping as most of the Angular Ferns, and is rather erect than horizontal. Its form is lance-shaped, and rather tapering toward the apex. Occasionally there is a little irregularity in the length of the pinna, but this is not sufficient to disfigure the plant, which, with its congeners, has a fair and goodly appearance, and though not so luxuriant as other varieties, is neat, light, and graceful. Our fronds are about nine inches long. It has been found at Dalwood and Kilmington.



6. Anomalous A. F. *Anomalum.* For the name of this Fern, which is quite a new one and first found in this neighbourhood, we are indebted to Mr. Moly. It has a narrow, lance-shaped, bipinnate frond. Its pinnæ and stiff leathery foliage resemble the Common Prickly Fern, (Polystichum aculeatum). The upper leaflets close to the mid-stem show, from their obtuse-angled base, that it belongs to the Angular division. The pinnæ as well as the leaflets are broad, close to each other, and have their apices blunt. The leaflets are egg-shaped, especially the under ones of each pinna. Those above are a little disfigured by the auricle, which is by no means so conspicuous as in other varieties. There is a strong spine at the apex and also at the point of each serrature. These spines or bristles, the stiff frond, the resemblance to the Common Prickly Fern, the overlapping pinnæ and leaflets are a great clue to the discovery of this variety. The frond is about a foot long. In many respects this bears a likeness to *var.* Braunii, found only in France. See Lowe's British Ferns, p. 95. M. Hawkchurch.

7. Nearly-tripinnate A. F. *Sub-tripinnatum.* This is one of the most handsome forms of the Angular Prickly Ferns. They are generally about a yard long. The leaflets are deeply cut at their edges. Those at the base of the

pinnæ have frequently two auricles, not only an outer but an inner one. The inner one is much the smallest, and that only attached to the lowermost leaflets of a pinna. These auricles are nearly, if not quite, distinct leaves. This is a plant of luxuriant growth, and has its pinnules pinnatifid or pinnate, which does not generally happen in this species. The frond itself is broader and stronger, though the foliage is not stiff or leathery. It seems questionable whether the plant would retain the same form if it were placed in a less favourable position for developing itself, and whether it would not degenerate into the ordinary appearance. The sub-tripinnate variety is very common in the neighbourhood. If we see in our hedge-banks a group of large, fine, handsome Angular Ferns, lying together in a dense mass, they are likely to belong to this form.

8. Decomposite A. F. *Decompositum.* This is one of the most divided Angular Ferns and is tripinnate. Its leaflets have other tiny ones cut out of them, which are serrated. This is a large, handsome plant and much resembles the preceding, but from being so much divided is still the more elegant. There is a spine to each serrature, and the leaflets close to the mid-stem, and at some little distance from the base, are those which show these little leaves to the greatest perfection. Axminster, Colyton, and Hawkchurch.

9. Plumous A. F. *Plumosum.* There are three leading characters to distinguish this variety. 1. It has a thin frond. 2. The under-leaflets of the lowest pinnæ are longer than the upper ones, while the pinnæ themselves are broad. 3. It is biserrate, *i.e.*, the distinct teeth or serratures of the stalked leaflets are again serrated. All the lobes are directed forward and cut into sharp teeth. The frond has a pale shining green colour and a broad egg-shaped outline. The Fern gracefully curves, and when pressed, becomes as thin as paper. M. Charmouth, Colyton, Combpyne, Hawkchurch, and Musbury.

10. Triangular A. F. *Deltoideum.* This has a triangular frond. The pinnæ also are triangular and overlap each other. The frond is about a foot high and the stalk is rather long. This has its leaflets decidedly stalked, and the

under-leaflets of the lowest pinnæ much longer than the upper ones and subdivided into other little leaflets, as is the case in the Lophodia or Feathered Ferns. (See page 29). The stalk is densely covered with scales. The leaflets of all, except the lowest pinnæ, are of the ordinary form and are bristly on their edges. M. Chard, at Tatworth.

11. Doubly serrated A. F. *Biserratum.* The leaflets are large, broad, and doubly serrated, distinctly stalked, and have bristles very conspicuous to the sight. The auricle is more deeply separated than the other lobes. The frond itself is rather broader than the generality of the Prickly Ferns. The stalk is long and the clusters on the back of the frond not so crowded as in some other cases. This is a large, handsome Fern and appears light and elegant, though the leaflets exceed the usual size of the species. This is not uncommon in most parts of the district.

12. Much-divided A. F. *Divisilobum.* The possessor of this plant can never mistake it. It is a fine plant, having a frond eighteen inches long and lance-shaped in form. Large as the plant is, the leaflets are subdivided into numerous minute ones, so that, though crowded and overlapping each other, they have an elegant appearance. All the stalks of every kind are intensely covered with red scales. This Fern, so striking and beautiful, is a rare plant. We shall not oft see its like again. Chard, at Tatworth, Hawkchurch, Lyme, Thorncombe.

12*a*. Moly's Much-divided A. F. *Divisilobum Molyi.* This differs from the preceding in having broader and more closely-set leaflets. The under-leaflets of two-thirds of the frond are twice as long as the upper ones, which are overlapped by the pinna above. The stalk is long and the habit erect. M. Lyme.

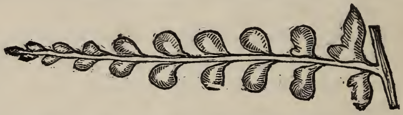
13. Bearded A. F. *Aristatum.* The chief distinction of this variety is that it has long bristles, and these curl in an extraordinary manner, and when the plant is held up to the light, and carefully observed, the appearance is very peculiar. Axminster, Axmouth, Combe St. Nicholas.

14. Variegated A. F. *Variegatum.* A plant has been found in the neighbourhood of Hawkchurch, which is

decidedly variegated with yellowish white. This has been tested for three years. As many foreign Ferns are dappled with green and white, it is not surprising that this locality should have a Prickly Fern of this character likewise. M.

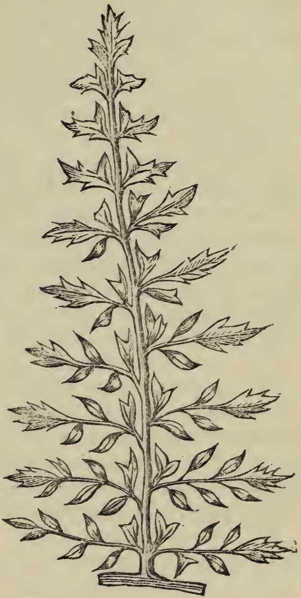
15. Puncturing A. F. *Pungens.* This Fern is peculiarly soft and papery in its texture. The frond is lance-shaped. The leaflets close to the mid-stem are oblong, with a conspicuous little ear or auricle. They are also remarkable for the teeth, which are very regularly placed and, like a saw, rise upward most distinctly, having a single spine and sometimes two at the point. The leaflets in the higher part of the pinnæ are much narrower and linear. Such is the case sometimes with all the leaflets in the frond. The regularity of the saw-like teeth, with their bristly apex, and the soft foliage, are the leading characteristics of this variety. The mid-stem is hairy and the frond six to eight inches high. Musbury.

16. Shell-leaved A. F. *Conchatum.* This is another new variety, to which a name has been kindly given by Mr. Moore. In consequence of the leaflets being bent down and their peculiar form, they, if viewed from behind, appear to have some resemblance to a mussel shell. The frond is lance-shaped, the leaflets and pinnæ are distant from each other. The pinnæ are opposite at the base, alternate upwards. In very few cases is the auricle apparent. The mid-stem has light-coloured scales and is slender, flexuous, and drooping. Should any be fortunate enough to find this plant, it would be easily known by the bent-down edges of the spatula-shaped leaflets, their shell-like appearance, and the lax character of the whole Fern. M. Hawkchurch.



17. Wollaston's Proliferous A. F. *Proliferum, Wollastoni.* This is decidedly the most striking and beautiful of the Angular Prickly Ferns. The frond is lance-shaped, tripinnate, and has its mid-stem densely covered with scales. The leaflets of this plant are very narrow, and sub-divided into other little distinct leaves, which may

be either described as awl-shaped or very narrow lance-shaped. The auricle for two-thirds of the frond is a distinct leaf, though this does not appear in the pinna represented in the woodcut.



The rest of the leaflet is narrow lance-shaped with teeth inclining upwards and an acute point ending in a spine or bristle. The whole plant presents a very light appearance. The leaflets are bright green and shining, and their narrow lance-shaped form, with the little projection at the base, gives it a peculiarly elegant aspect. The mid-stem or rachis in many cases most neatly undulates. Bulbs are produced at the points where the pinnæ meet the mid-stem. By these bulbs young plants are more easily produced than by sowing the spores. Not all the plants have these little bulbs. If this Fern be placed in a small flower-pot so that the roots have not fair play, then nature will have its perfect work, and the roots will arise above the surface of the ground in the form of bulbs. Thus we find the poet's assertion verified,

> "Naturam expellas furcâ, tamen usque recurret."—Horace.

You may drive away nature with a pitch-fork, yet will she continually return. M. Hawkchurch.

18. Wollaston's 2nd Proliferous A. F. *Proliferum Wollastoni No.* 2. This also is a beautiful plant. It is sometimes called the narrowed (angustatum) proliferous Fern. The frond is generally narrower than in the preceding form. Its pinnæ have rather a tendency to be

curved instead of forming a stiff, straight line. The lowest pinnæ have their leaflets or pinnules sub-divided into other smaller ones, and hence the frond is tripinnate. The leaflets and lobes are small, yet, small as they are, they are larger and wider, though not longer, than those of the preceding variety. The mid-stem curves gracefully and is densely covered with scales. Though this plant has not yet been found in this neighbourhood to be proliferous, Wollaston has no doubt that this will be the case. M. Chard, at Tatworth.

19. Much-lobed A. F. *Multilobum.* This is a handsome and elegant Fern. The frond is often two feet long and of a narrow lance-shaped form. The pinnæ are longer and broader and the leaflets much more subdivided towards the centre of the frond than elsewhere. The sub-leaflets or little leaves of the leaflets are toothed at their tips. The upper leaflets of each pinna, which are close to the mid-stem of the frond, have an auricle on each side. These upper leaflets are also at right angles to their mid-stem, while those underneath are often at an angle of 45°. One more circumstance may be mentioned, that the auricles and lobes are not so acute as in many other varieties. This Fern bears a resemblance to the Decomposite A. F., but sufficient has been said to make the distinction clear. Hawkchurch, Kilmington, and Monkton Wylde.

20. Long-stemmed A. F. *Longicaule.* This differs from the Common Fern in having a long stalk, a triangular frond, and the basal pinna and leaflets broader than the others. M. Axminster and Charmouth.

21. Bordering A. F. *Affine.* This resembles a slender form of the Common Prickly Fern (aculeatum). It has a long stalk, firm substance, a lance-shaped form, and tapers at its summit. The leaflets are egg-shaped and hooked at the tip, having a blunt auricle and being indistinctly serrate and rather convex. M. Monkton Wylde.

22. Little Beauty A. F. *Pulchellum.* This is beautifully small in all its divisions or serratures, and has its leaflets biserrated with bristles or spines on the tip of its lobes, which much add to its beauty. Monkton Wylde.

23. Obtuse A. F. *Obtusum.* The frond is linear lance-shaped and fifteen inches in length. Both the pinnæ and

leaflets are blunt. The leaflets are broadly egg-shaped when the auricles are cut off, and serrate or biserrate, with a spine sticking out at the apex. M. Wootton.

24. Bent-leaf A. F. *Reflexum.* The bent-down leaflets, with the acute angle of the auricles, and papery texture of the fronds, are quite sufficient to determine this plant. M. Hawkchurch and Kilmington.

25. Winged A. F. *Pterophorum.* This is simply pinnate. The mid-stem of each pinna is winged or has a leafy appendage. There are, strictly speaking, no leaflets, but lobes, which seldom have an auricle, neither are the serratures very apparent. The stalk and mid-stem are slightly scaly. M. Colyton and Shute.

26. Moly's Winged A. F. *Pterophorum Molyi.* At first sight this might be considered the lobed variety of the Common Prickly Fern, but the soft and not leathery texture of the frond and the length of the stalk show that this is a winged variety of the Angular Fern. M. Hawkchurch.

27. Lax A. F. *Laxum.* This has it pinnæ distant from each other and alternate. The frond is lance-shaped. The leaflets are also distant and lax, with a wedge-shaped base, acute, hooked, and spiny at the apex. The upper basal leaflet of each pinna is longer than the rest, with a distinct auricle. The stalk and mid-stalk is scaly or hairy. M. Lyme.

28. Twice-serrated Lax A. F. *Biserrato-laxum.* This has all the characteristics of the twice-serrated Angular Fern with the lax habit of the preceding. M.

29. Thin A. F. *Levidense.* A large variety with narrow, spiny leaflets, having its auricle broad and stalked, for which reason the frond is tripinnate. The frond is from two to three feet long. The pinnæ are opposite or nearly opposite at the base: alternate upwards. M. Hawkchurch.

30. Thick A. F. *Crassum.* This is a small plant having its leaflets and pinnæ broad and short and close together. It has also a coarse texture. M. Axminster.

31. High-stalked A. F. *Altiaceum.* This has its stalk longer than the frond, its leaflets and frond narrow, and the whole frond of a peculiarly light and hairy appearance.

The leaflets have only a bristle at the point and the mid-stem very slightly scaly. M. Hawkchurch.

32. Plumous Little Beauty A. F. *Plumoso-pulchellum.* Here we have a combination of two varieties, the elegantly divided leaflets of the *little beauty*, with the feathery form, light colour, and papery texture of the Plumous variety. M. Uplyme.

33. Moly's Most-beautiful A. F. *Pulcherrimum Molyi.* This has an erect habit. The fronds are lance-shaped. The leaflets are oblong, having their edges deeply divided into narrow, linear lobes, which are curled backwards. Towards the base of the frond the basal leaflets are thrice divided. The lowest pinnæ are opposite: the others become gradually alternate. M. Colyton. The ordinary form (pulcherrimum) which only differs in having a lax habit, has been found in the same parish.

34. Partly-variegated A. F. *Parti-variegatum.* This differs from the variegated variety in not having all its leaflets streaked, but only a single pinna and sometimes several of a different colour from the rest of the frond. M. Hawkchurch.

35. Obtusest A. F. *Obtusissimum.* This has both its leaflets and auricles blunt, its frond stiff and leathery, its mid-rib and stalk scaly, and its leaflets close if not overlapping each other. M. Charmouth.

36. Wedge-shaped A. F. *Cuneatum.* This has a lax habit, wedge-shaped leaflets, and pinnæ tapering or attenuated. There are bristles at the apex and serratures. This is a truly graceful variety. M. Monkton Wylde.

37. Slender A. F. *Tenue.* The fronds of this plant are egg-shaped: the leaflets are narrow, slender, and hooked at their tips, bending down in such a way that the under part seems to form a little trough. It is peculiarly lax in its habit and would be an ornament to a Fernery. M.

37a. Yellow-stalked A. F. *Flavo-rachides.* The frond is narrow, lance-shaped, about nine inches long. The leaflets are lance-shaped but rounded at the tip, on which there is always a bristle. There is also an auricle distinctly apparent. The rachis or mid-stem both of the frond and the pinnæ is of a brownish yellow colour. Its texture also is papery. M. Axminster.

IRREGULAR ANGULAR FERNS.

38. Decurrent A. F. *Decurrens.* This is the least irregular of all the plants placed in this section. The fronds are lance-shaped and the pinnæ are rather distant from each other. The leaflets are scarcely ever stalked, but are joined to their mid-stem by a broad attachment. They have generally an auricle and are sometimes toothed in other parts. They are also wedge-shaped at the base and in the upper part have often a clumsy aspect. The higher portion of the frond is in some measure distorted, especially where the clusters of fruit are placed. The plant is scarcely bipinnate, as hardly any leaflet is stalked. The Fern is of a dark colour, thick in texture, handsome, and neatly arranged, having but few stunted or distorted leaflets and is a foot long without the stalk. M. Colyton and Dalwood.

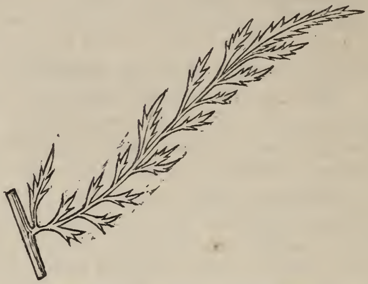
39. Curled Decurrent A. F. *Crispato-decurrens.* This is not quite so thick in texture as the preceding and more leafy. Its chief peculiarity is its crisp or curly appearance. M. Lyme.

40. Recurved Decurrent A. F. *Recurvo-decurrens.* This has more the aspect of the ordinary decurrent form, and is more lax and less leafy. The principal thing to be noticed is that the margin of the leaflets curve upwards, as in the Hay-scented Fern, and the middle part of them thus becomes hollow. M.

41. Margined Decurrent A. F. *Marginato-decurrens.* Here a little ridge is formed occasionally on the surface of the Fern from the skin (epidermis) of the leaflets receding from their margin. M.

42. Linear A. F. *Lineare.* By Mathematicians it is said that a line is length without breadth. It is difficult to comprehend how this can be. In our own hedge-banks there have been found Ferns having leaflets, which are certainly wider than this imaginary line, but still a mere line. Such is the case with this variety. Near the base of this line another line rises upwards at an acute angle. These are the little leaves—something like the upper part of a nut-crook that lads use for pulling down the bushes—turned upside down. Sometimes the leaflet is a straight

line and no crook at all, and at times one or more are so tiny, that they are barely perceptible. The frond is exceedingly tapering. The mid-stem and stalk beneath are densely covered with scales. The clusters of spores are on the edge of the leaflets and consequently become visible from the upper side of the frond. The leaves also are altered by the fructification. Axminster, Charmouth, Hawkchurch, Musbury, Thorncombe, and Wootton Fitzpaine.



PINNA OF THE LINEAR ANGULAR FERN

43. Bitten-off A. F. *Præmorsum.* This is more curious than elegant. It has this name given it, because the leaflets appear to have been bitten off, though on examination they are found to be as God created them. They are also often marginate,* and have frequently little warts on their surface, or, as Botanists describe it, they are verrucose. The pinnæ are very short, and often the frond is about three inches wide and a foot and a half high. The stalk and mid-stem are generally covered with scales. The ends of all the leafy parts are abrupt or blunt. The pinnæ at times are so stunted, that they are scarcely more than three or four leaflets huddled together. The regular leaflets are roundish, egg-shaped. The irregular ones, *appearing as it were bitten-off*, form the leading characteristic of this plant. Charmouth and Seaton.

44. Long-armed Bitten-off A. F. *Projecto-præmorsum.* This may be denominated a sub-variety of the preceding.

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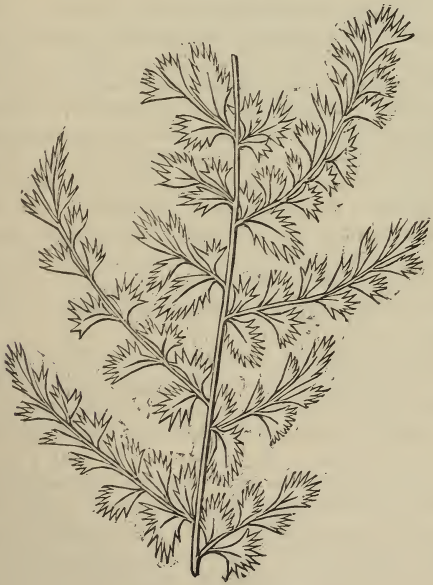
* See Woodcut of Scolopendrium Marginatum.

This also is a new Fern found only here, which Wollaston has kindly named. This, while it has very narrow and abrupt fronds, throws out occasionally a pinna much longer than the rest. The fronds are short, about six or seven inches long, and slightly branched at the highest part. Almost all the leaflets appear bitten-off, and some are not altogether unlike an ivy leaf, with three rounded lobes. The shorter the pinna, the larger the leaflets are. This plant is rather singular than pretty. An odd, mis-shapen creature it is. It is never more than three inches wide and sometimes not half an inch. M. Charmouth.



GREAT-TOOTHED ANGULAR FERN.

45. Great-toothed A. F. *Grandidens.* The peculiar character of this variety consists in the large, deep, and coarsely-cut teeth, on the edge of the leaflets, which are

also bristly. The fronds are narrow lance-shaped. The pinnæ generally terminate abruptly. In many cases they are so stunted that they are not an inch or half an inch long, and consist of only a few mis-shapen leaflets having very coarse teeth. These leaflets vary considerably in their form. They are obliquely wedge-shaped, triangular, lance-shaped, egg-shaped, or, sometimes, semicircular. Even in the most regular part of the frond, here and there, we meet with some odd kinds of leaves, showing how Nature sports on sundry occasions. M. Axminster, Chardstock, Charmouth, Hawkchurch, Uplyme, and Wootton Fitzpaine.

46. Truncated Great-toothed A. F. *Truncatum Grandidens.* This is a sub-variety of the preceding. It receives its name truncated (lopped off) because its summit appears as if a portion had been taken away. Many of the leaflets are semicircular in their upper and wedge-shaped in their lower portion. It seems as if spikes were projecting in their upper portion. They are, however, perfectly harmless, and not like those which were fixed in the barrel into which Regulus was thrown, and cast down the hill by the Carthaginians. In some cases the leaflets are triangular, but always having on the upper edge these great teeth. The pinnæ are alternate and vary in length, having at one time a single leaflet and at another five or six. This, strange as it appears, is a pretty little Fern. M. Wootton Fitzpaine.

47. Minute Great-toothed A. F. *Minuto-grandidens.* This is a beautiful plant. With fronds four or five inches high, and tiny leaflets, still the great teeth appear. Some of the leaflets are wedge-shaped and some of the pinnæ exceedingly stunted. M. Thorncombe and Forde Abbey.

48. Moly's Great-toothed A. F. *Grandidens Molyi.* This has an exceedingly irregular frond. Here and there the frond is two inches wide. The pinnæ are generally abrupt at their ends. The leaflets assume various forms, but are for the most part broad and never so narrow as in the preceding variety. The bristles on the leaflets are rather conspicuous. M. Axminster.

49. Unicorn Great-toothed A. F. *Grandidens-cornutum.* This is one of Nature's most singular freaks. The tips

of many of the pinnæ have enlarged leaflets which are semicircular, with a wedge-shaped base, and large teeth protruding. The pinnæ are alternate. The whole plant is not more than six inches long, of which the stalk takes two. The width varies from three and a half inches to half an inch, without any uniformity in its variation, and averages an inch. The leaflets at the extremity of the frond or pinnæ either resemble a child's kite or are ovate or triangular, always having large teeth projecting, and making the Fern a most conspicuous object. As the plant is not mature, it is to be hoped that as it advances in life it will not alter its character. It must not be forgotten that instead of a leaflet at the end of the frond a little horn appears, not much thicker than a thread. M. Hawkchurch and Wootton Fitzpaine.

50. Interrupted A. F. *Interruptum.* This, as its name implies, is *interrupted* here and there by having shorter pinnæ or mis-shapen leaflets. The largest leaflets are regular and serrated with an auricle that is serrated likewise. The others are much reduced in size, wedge-shaped at the base, triangular, egg-shaped, or roundish above. These are generally near the mid-stem. The pinnæ vary in length, some three inches, others only half an inch. The frond is from twelve to eighteen inches, of a narrow, lance-shaped outline, tapering towards its tip. Moore describes the apex as caudate—tailed or tail-like. This in a measure makes amends for the deformities in the other parts of this variety. Its lengthened form and majority of pinnæ shortened form the leading character of this variety. M. Axminster, Charmouth, Hawkchurch, and Wootton Fitzpaine.

51. Jackson's Interrupted A. F. *Interruptum Jacksoni.* This differs from the preceding variety in having a lax, airy frond, torn or laciniated and in some cases linear leaflets. The leaflets on the higher part of the pinnæ are generally more regular and oblong. The frond is about a foot long. M.

52. Dissimilar A. F. *Dissimile.* This differs from the ordinary interrupted form in not having so elongated a form or such a tail-like apex, while, on the other hand, its

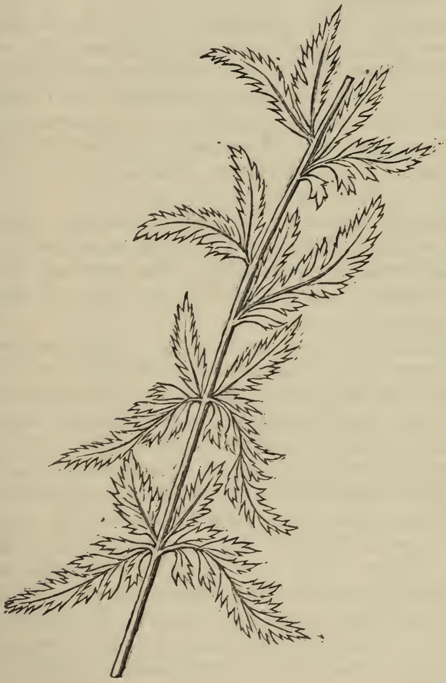
leaflets have much more bristly teeth or serratures. This plant varies much in its aspect, leaflets, and pinnæ. The frond terminates abruptly and if it has any definable form, it is lance-shaped. The regular or full-sized leaflets are oblong or egg-shaped and sometimes have an auricle. The stunted ones are either linear, wedge-shaped, lance-shaped, or egg-shaped. Their edges are very bristly. The pinnæ vary in length from three inches to half an inch. The head and pinnæ are sometimes divided into two or more parts. The fronds are sometimes proliferous and the mid-stem is profusely covered with narrow scales. M. Thorncombe.

52a. Laciniate A. F. *Laciniatum.* This resembles both the interrupted and dissimilar forms. It differs from the former in having a more leathery texture and less caudate pinnæ. It differs from the latter in having its regular leaflets more elongate and pointed. It differs from both in having its regular leaflets less toothed and less bristled, and its irregular ones more laciniated or torn. Thorncombe; Forde Abbey.

52b. Cornute Laciniate A. F. *Cornuto-laciniatum.* The great distinction here is that the fronds have not only the character of the preceding but also terminate abruptly and are cornute. M. Axminster.

53. The X or St. Andrew's Cross A. F. *Wakleyanum.* It is said that St. Andrew was crucified but not on the same kind of cross as that of our blessed Saviour. His resembled the large X used in print. A Fern has been found in this region, that has a portion of its frond which presents to our view St. Andrew's Cross. A certain navvy, who had an eye to behold the beauties of Nature, (and why should not navvies and the humbler classes have a taste to admire the handy works of God as well as persons of higher rank?) spied in a hedge near Axminster a pretty little Fern. This is described in the first edition of "The Ferns of the Axe" as the Variable Fern. When, however, the plant more fully developed itself, at certain points of the mid-stem two little branches forked, and appeared just as if the letter X was cut in two. On the opposite side of the mid-stem was the same fork and thus there was St. Andrew's Cross. Only at the very lowest part have we

this cross. (See woodcut). Afterwards the forks alternate for nine inches in good specimens, then for two inches; the pinnæ for two inches are in no respect forked, when the head itself becomes divided and tasseled. This plant much resembles in its leaflets and stiff leathery texture the Common Prickly Fern (Polystichum Aculeatum). At the basal portion of the frond the leaflets lap over one another; higher up they are not so crowded. For the height of a



THE X OR ST. ANDREW'S CROSS ANGULAR FERN.

foot it is two inches broad, then it soon becomes twice as broad, when again it soon contracts itself terminating with a fork, which curls and hangs down. The leaflets are bristle-pointed and the stalk and mid-stem are densely covered with scales. The length of the frond is seventeen inches and upward.

54. Crested A. F. *Cristatum.* The tip of the fronds and of each pinna are a little widened and then so finely divided that this may be truly called a crested Fern. The specimens are not so striking as those of the Crested Male Fern which are so often exhibited in conservatories. The curly tufts appear much more in the head of the plant than in the pinnæ. M. Axminster, Hawkchurch, and Wootton Fitzpaine.

55. Bristly Crested A. F. *Setoso-cristatum.* This variety has a very bristly foliage, with pinnæ occasionally stunted and leaflets sometimes wanting. The apex of each frond is finely crested, and frequently the apex of the pinnæ. M. Axminster.

56. Crested Long-armed A. F. *Brachiato-cristatum.* The distinguishing characteristic of this and the next variety is that the lowest pinna is much longer than the rest and the frond many times branched at the summit. The frond is about eighteen inches high. The leaflets, if the auricles are removed, are oblong in form, and in the pinnæ in the lower half of the frond are frequently shorter near the rachis than those near the apex. M. Axminster.

56a. Gray's Crested Long-armed A. F. *Brachiato-cristatum Grayi.* This is much smaller than the preceding; nine inches high, and nearly prostrate in growth. The apex of the frond and pinnæ are crested. The leaflets in the higher part of the frond vary considerably, though they are by no means distorted or unpleasant to the eye. M. Hawkchurch.

57. Wedge-shaped Crested A. F. *Cuneato-cristatum.* Here we have the wedge-shaped variety with its apex and pinnæ beautifully crested. The plant also is variegated. M. Hawkchurch.

58. Small-headed A. F. *Parviceps.* This differs from the preceding in dividing into two little portions about

half an inch from the summit and having these crested at the tip. Each pinna at its tip assumes more or less the same appearance. M.

59. Moly's Slender-crested A. F. *Cristato-gracile Molyi.* This is the handsomest of the crested Ferns of the Axe. The fronds are about a foot long and broadly lance-shaped. The apex of the frond and of each pinna is crested and even the leaflets are minutely crested likewise. The leaflets are oblong, with a small auricle, and in all cases the basal ones are crested. M. Axminster and Coaxdon.

60. Clustered A. F. *Corymbiferum.* This branches about three inches from the head of the frond into five or six parts, which repeatedly branch again into as many as fifteen divisions, forming a dense head, which causes it to lean on one side and not retain so erect a position as so noble a plant has a right to do. The mid-rib is semi-transparent and the colour of the foliage a delicate green. M. Axminster.

61. Partly-headed A. F. *Subcapitatum.* This differs from the preceding in not having all its fronds branched: neither do the branches cluster together, but form a broad, flat, hand-shaped apex. M. Hawkchurch.

62. Much-cleft A. F. *Multifidum.* The peculiarity here appears in having the upper half of the frond divided into two great branches and these subdivided into several smaller without a tasseled appearance as in the preceding variety. Axminster and Musbury.

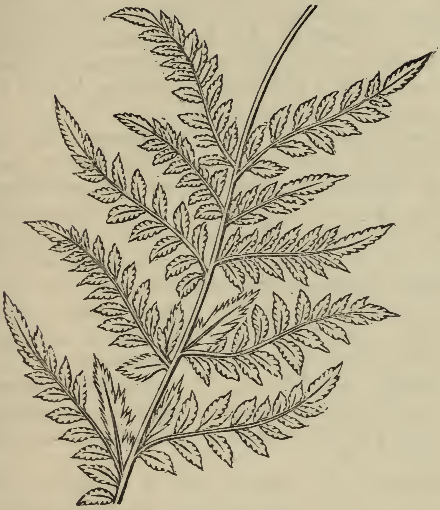
63. Unequal A. F. *Inæquale.* The name is a clue to the distinctive character of this variety. Most of the leaflets are oblong egg-shaped, bluntish, with a spine at the tip and an auricle at the base, but it is the inequality of their size, some being broader and some narrower, that constitutes the chief difference. Occasionally we meet with a misshapen leaflet, especially at the upper part of the frond where it is fertile. The pinnæ, however, are all symmetrical. This is a neat looking irregular form. M.

64. Netherton Hall A. F. *Euprepes.* A frond of this marked variety has been kindly furnished by the Rev. C. Padley. Though this is one of the irregular forms it may be described as broadly lance-shaped. Its frond is about

eighteen inches, the lower half of which is tolerably regular, though occasionally there may be a shorter pinna between two longer, or on one side it may be considerably shorter than on the other. The mid-stem both of the frond and of the pinnæ and the stalk (stipes) are covered with reddish scales. The longest pinna, varying from the fourth to the seventh from the base, are three or four inches long. The leaflets of the lower half, if the auricles were removed, are generally oblong, and generally nearly equal in size except that at the apex. They are also blunt with a spine at their summit. Those at the top of the pinna are frequently larger and misshapen. In the upper half of the frond there is much greater irregularity. Not only does a pinna consist of a single leaflet, or is not a quarter of an inch long, or is branched, but the leaflets assume different shapes. They have often a wedge-shaped base, sometimes are triangular, like the letter V, with a line across the top, and with little spikes jutting out of that top line. They are also lance-shaped, egg-shaped, or nothing more than a little line. Here, too, the highest leaf is the largest. Mrs. Thompson, of South Lawn, Exeter, discovered this Fern growing at Netherton Hall, Farway.

65. Moly's A. F. *Molyanum.* The frond of this plant, though irregular, does not appear unsymmetrical, and is of a lance-shaped form about a foot long. Sometimes two pinnæ are placed on one side of the mid-stem, while on the other side there is only one, which is rather longer. The leaflets are crowded and occasionally lap over each other. They are sometimes, and more frequently in the upper part of the frond, reduced in size, and are very narrow indeed, with or without an auricle; nay, it may so happen that only a line appears. In no case do the stunted leaflets produce a gap or hiatus, as in the linear variety, but afford a pleasant relief to the eye. The edge of the foliage is thickly fringed with fine hair. The very narrow auricle is striking and peculiar. The lower pinnæ often most gracefully droop. The stalk and mid-stem have rusty red scales or hair. The leafy portion of the whole plant is thin and of a papery texture. Though the pinnæ and leaflets vary in size, length, and number, still the general effect is most tasteful and

elegant, The leaflets are all stalked and those nearest the



SEGMENT OF FROND.

mid-stem are generally longer than the rest and deeply pinnatifid. M. Hawkchurch and Musbury.

66. Deficient Linear A. F. *Lineare deficiens.* This is a large plant very unprepossessing in appearance. Sometimes two or three pinnæ are, on one side of the mid-stem, wanting, or are merely represented by a line or bristle, while it is all perfect on the other. At other times the leaflets do not appear on the upper side and are regular enough beneath, or the reverse is the case. The leaflets also assume different forms and it is "*varium et mutabile semper.*" M. Thorncombe.

67. Various A. F. *Variosum.* This is a smaller plant similar in character, but not having any pinnæ or leaflets represented by a mere line or bristle. M. Hawkchurch.

68. Moly's Flexuous A. F. *Flexuosum Molyi.* This has a narrow lance-shaped frond, a waved mid-stem, with

its regular leaflets somewhat resembling a square and its irregular ones wedge-shaped and often a spine on each side of the top of the wedge. M. Hawkchurch.

69. Moly's Horned A. F. *Cornutum Molyi.* This differs from the ordinary form in having a few pinnæ, which are regular, and the mid-stem projecting beyond the uppermost in the shape of a horn. M.

70. Many-formed A. F. *Multiforme.* The frond and pinnæ have quite a natural aspect. The leaflets vary greatly. They are egg-shaped, lance-shaped, wedge-shaped, having an auricle, narrow or broad, a mere line or hair, and sometimes they are so reduced that the pinnæ appear destitute on one side of two or three leaves, though generally they grow on the opposite side. M.

71. Acute Forked A. F. *Acuto-furcans.* This is the acute variety with the tips of the pinnæ and apex of the frond having a tiny fork. M. Chardstock.

72. Leathery Forked A. F. *Coriaceo-furcans.* This differs from the other forked varieties in having a leathery texture, and not the apex of the fronds but of most of the pinnæ forked. M.

73. Slender A. F. *Gracile No.* 2. This is a very pretty Fern. The frond is lance-shaped, tapering at its summit. The leaflets are small, narrow, and distinct, generally without an auricle. The stunted ones are linear with a wedge-shaped base. The apex of each lower pinna and every upper pinna is confluent. The fruit-bearing leaflets have three or four clusters of spores. M. Monkton Wylde.

73a. Moly's Slender A. F. *Gracile Molyi.* Many of the fronds differ from the preceding in terminating abruptly. The leaflets are generally wedge-shaped, and the plant does not exceed six inches. M. Forde Abbey.

74. Baby's Glove A. F. *Manica infantis.* This is a small plant about eight inches high having its leaflets resembling a baby's glove. M. Offwell.

75. Moly's Imbricated A. F. *Imbricatum Molyi.* This has a narrow lance-shaped frond, of a dark green colour, with its leaflets closely imbricated and of an egg-shaped form. Very few of the leaflets are stalked: generally only those at the base of the pinnæ. This differs from the true

imbricated variety in being horizontal in its growth and occasionally forked at its tip. M. Hawkchurch.

76. Irregularly Diminished A. F. *Dispar*. The leading characteristic of this variety is that its pinnæ are here and there irregularly diminished, all tapering to a spiny point. M.

77. Branched Irregularly Diminished A. F. *Ramo-dispar*. This differs from the preceding in being branched at the tip of the fronds, either simply or three or four times.

78. Moly's Varying A. F. *Varians Molyi*. Here we have a plant which may be truly called varying, as pinnæ, leaflets, and fronds, all vary in size, length, and form, and the leaflets and pinnæ are occasionally missing. The leaflets are crowded together and distinctly stalked. The apices of the fronds are simply or three or four times forked. This is about six inches high. M.

79. Sharply-divided A. F. *Acuto-dissectum*. An acute fronded Fern, much dissected, two feet long, and six inches wide. Stalk short and stout. Mid-stalk scaly on lower half; reddish above. Under leaflets in lower part of the frond longer than the upper one. All the leaflets are narrow and acute with an acute auricle. M. Catherstone, near Charmouth.

80. Small-pinnuled A. F. *Parvi-pinnulum*. This plant is nearly regular. Its only irregularity consists in having its leaflets near the mid-stalk much smaller than those in the upper parts of each pinna, whereas the general rule is quite the reverse. M. Uplyme.

81. Fan-formed A. F. *Flabellulo-forme*. This is remarkable for having its fronds narrow one-third of its length and thus expanding itself in the form of a fan; hence the name. It is a small plant six inches high and of a dark green colour. M. Offwell.

82. Bristly Square A. F. *Setoso-quadratum*. Here we have an elegant plant, a foot high, with square leaflets conspicuously toothed, marginate, and having each tooth terminating with a long bristle. M. Colyton.

83. Crested Little Beauty A. F. *Pulchello-cristatum*. This has all the characters of No. 22, and in addition it may be stated that at the apex of each pinna, and the frond itself,

it has a ball-like crest, and has its leaflets more closely set together. M. Hawkchurch.

84. Headed A. F. *Capitatum.* Though a small plant it has a very large head. The frond is shorter than the width of the much-branched head. All the pinnæ of every branch, though exceeding an inch in length, have their leaflets confluent. The branches are all branched and some several times. M. Axminster, at Wyke.

85. Kitson's A. F. *Kitsoniæ.* The mid-stem of the frond of this variety separates, when it reaches about half its height, into four or five branches which are tufted in clusters, and the pinnæ which form them are dilated and crispy at their tips. The pinnæ below are generally regular, occasionally branched; the leaflets are numerous, oblong, acute, serrated, and bristly. In the branches which form the great tuft at the head of the frond both the pinnæ and leaflets are altered, being for the most part smaller and running more together than in the pinnæ below, but there is the same bristly toothing throughout. M. Hawkchurch.

◆

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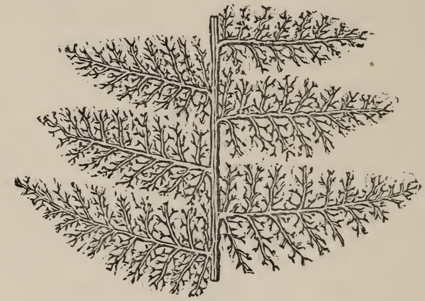
LADY FERN. *Athyrium filix femina.*

See page 53.

1. Deep-cut or incised Lady Fern. *Incisum.* This is a very fine and luxuriant form of the Lady Ferns, attaining the height of three or four feet. The root-stock is stout and firmly rooted. The fronds are large, broadly lance-shaped, and, though not quite erect, may be described as slanting or gracefully drooping. The foliage is soft, the stalk and rachis are quite stiff and rigid. The stalk is about a fourth the length of the frond, black and thickened at the lowest part. The mid-stem is by no means transparent. The pinnæ have distinct leaves and would be linear if they did not taper towards the summit. The leaflets are large, long, gradually tapering, and deeply divided. Where they divide, the slit reaches almost to the mid-rib. These are also flat and have at the ends of their lobes two or three teeth. These lobes or segments are oblong, and have sometimes also at the sides a few sharp teeth. The clusters of fruit are generally curved, and when the covers disappear, are often crescent-formed rather than circular. This variety is common, and grows abundantly under hedge-banks where there are little purling streams. Magnificent specimens of this variety grow on the hedge-bank of a lane between Broadwinsor and Stoke.

2. Erect Lady Fern. *Convexum*, Newman. *Rhœticum*, Moore. This is more delicate and frail, of a pale green colour, and a softer texture. The root-stock is very stout, firmly fixed in the soil and difficult to be eradicated. The stalk is short, thickened and wide at the base, with dark-tipped brown scales. The frond is bipinnate, and grows erect, one or two feet high, sometimes more. Its appearance, though graceful, is never so fine and luxuriant as that of the preceding species. The rachis and stalk is four-sided, somewhat transparent, and often tinged with a reddish colour. The lower pinnæ frequently bend downward, and the higher ones upward, with a slight tendency near the summit to turn back. The leaflets, owing to the edge curling back, appear quite linear, but if they were expanded, it would be found that they are wider at the base, where there is a

jutting out of the side, and after that jutting out, they then taper to the extremity, and are in fact triangular. They have no distinct stalk, but a broad attachment, and are distant from one another. When the covers of the fruit disappear, the clusters are almost round and spread over nearly the whole of the under surface. This grows in more exposed situations on our wet commons rather than our woods and sheltered hedge-banks.



SEGMENTS OF PINNÆ OF PLUMOUS LADY FERN.

3. Plumous Lady Fern. *Plumosum.* Elegant as the Lady Fern always is, this variety is still more elegant and graceful than the other Ferns of the species. Though the fronds are frequently very large, yet nature has so elegantly adjusted all its parts, so neatly divided every portion of the leaflets, given it such a soft green colour, and so raised it in an erect position without being stiff and awkward, that we may pronounce it *the fairest of the fair.* If it could be imagined that the King Fern, the Royal Flowering Fern, Osmunda Regalis, should select any other as the object of his choice, and make her his bride, this surely he would fix upon and in this he would delight. The root-stock is very large. The stalk or leafless part is a fourth the length of the frond. The rachis or mid-stem is woody. The frond is egg-shaped or broadly lance-shaped and tripinnate, as the lowest pinnules or leaflets of some of the lower pinnæ are subdivided into

little leaves. The rachis of a pinna is sometimes waved and often of a purple colour. Some pinnæ are nearly a foot long. The leaflets are much more deeply toothed than in the variety incisum. Several of the finer ones are two inches long. The covers run nearly in a straight line. The clusters of fruit are in the slit, and their position is by no means symmetrical. When the pinnules have no stalk, they have a rather broad attachment. The preceding varieties have each pinna distant from the next, and in dried specimens appear quite distinct. In this variety the vegetation is so luxuriant that one crowds upon and laps over its neighbour, so that it cannot by any contrivance be separated. In the variety No. 1 the lobes of the leaflets are toothed at their edges, but the teeth are not very long or very conspicuous. In this, the much longer teeth and jagged edges of the lobes have a most pleasing and delightful effect on the eye. The leaves are flat, not bent down as they are in the convex or erect Lady Fern. No bristle points are visible as in the Prickly Fern. This beautiful, charming, and lovely variety is another of those interesting plants with which our neighbourhood is so richly supplied, and it seems that a journey must be taken to Yorkshire ere we can find it growing in its natural haunt again. It grows in a meadow in the southern division of Stockland parish.

In this instance we see a striking difference between a species and a variety. To an ordinary eye, or to a young botanist, it would appear that the Plumous Lady Fern was most certainly a distinct species. The plant appears so much superior, the vegetation so remarkably more luxuriant, the various lobes and leaflets so deeply and elegantly cut, that it could never be imagined to be identical with the usual form of this Fern. When, however, any one sits down and attempts to point out any unvarying distinction, he perceives that the difference only consists in the fuller development of the plant and the magnified representation of every feature.

4. Ovate Lady Fern. *Ovatum. Roth.* This is a large form of a lax character having fronds about three feet high and broadly egg-shaped. The pinnæ are linear oblong, tapering towards their extremity. The leaflets are oblong,

distinct; broad at the base, with a narrow attachment; blunt at the point; flat and not deeply divided. The clusters of spores lie in two lines near the mid-rib. Uplyme.

5. Torn Lady Fern. *Laciniatum.* M. The lance-shaped outline of the frond of this variety is broken by the shortness of some of the pinnæ. Some of them are very tiny indeed, others taper in the ordinary form, while others appear to be bitten off. The leaflets are not stalked but seem torn and vary in size and form. The clusters of spores are numerous and crowded about the base of the leaflets. Monkton Wylde. Hawkchurch.

6. Crested Lady Fern. *Multifidum.* M. This, though it must be classed among the irregular varieties, is most symmetrical and graceful. The frond is broadly lance-shaped, sometimes two or three feet high. The leaflets are narrow, linear, scarcely stalked, and much resembling those of the erect Lady Fern. The tips of the pinnæ are elegantly forked or trifid, as in the other crested varieties, and these segments minutely forked at their ends. The neatly divided leaflets, the delicate green colour, with the tasseled head of the frond and pinnæ give a beauty to this plant, which he must be sadly devoid of taste, who cannot descry. Hawkchurch; at Cowse. Thorncombe.

7. Sharply-pointed Crested Lady Fern. *Acuminato multifidum.* W. This differs from the ordinary Crested Lady Fern in having each pinna and the apex of the frond much more tapering previous to its being forked or trifid. M. Hawkchurch.

8. Irregular Lady Fern. *Irregulare.* M. The pinnæ are distant in the upper half of the frond they are furnished with narrow lance-shaped or linear leaflets, which are tolerably regular, acute, cut on their edges, and three quarters of an inch long; in the lower half the leaflets are considerably and irregularly shortened, frequently they are round or fan-shaped with serrated lobes. M. Hawkchurch.

9. Hoary Irregular Lady Fern. *Pruinoso irregulare.* W. This is not so irregular as the preceding and is peculiar for having a hoary appearance resembling the bloom on a newly gathered plum. From being covered with minute glands this may be noticed both in the stalk and mid-stem of the frond. M. Hawkchurch.

10. Horned Irregular Lady Fern. *Cornuto-irregulare.* W. In addition to the abnormal appearance of the irregular Lady Fern, this variety has a little horn projecting at the apex of the frond and of some of the pinnæ, which gives it a curious disfigured aspect. M. Axminster.

11. Eroded Lady Fern. *Erosum.* W. This plant is of the ordinary size of the species and for the most part regular in its frond and pinnæ. The regular leaflets are blunt, oblong, pinnatifid, having the lobes unequal, with short blunt teeth: those which are irregular are very unequal in size and have a torn, shattered appearance. They are also occasionally forked or even multifid. M. Hawkchurch.

12. Thrice-cleft Lady Fern. *Trifidum.* M. This is a slender and neat variety, with a frond about eighteen inches high. The pinnæ are narrow lance-shaped. The leaflets are egg-shaped, having three teeth at their apex, and hence the name. M. Hawkchurch.

13. Misshapen Lady Fern. *Informe.* M. "A very " curious pigmy variety never exceeding three inches in " height or an inch in width. The fronds are generally very " irregular in outline; some forked in the rachis, others in " the stipes (stalk) and then twin-fronded, others again are " nearly plain and more regular. The pinnæ vary much in " shape, sometimes nearly round with serrated edge, some " forked, others much lengthened, here and there one is " altogether missing, in other places three or four in " succession on one side of the frond are wanting. The " pinnules vary in shape as much as the pinnæ, consisting " often of a mere tooth or twin teeth. In some places the " irregularities convey the impression that the pinnæ and " pinnules had confusedly run together." M. Hawkchurch: Lamberts Castle.

MAIDENHAIR SPLEENWORT. *Asplenium trichomanes.*

See page 55.

1. Twice-Forked Maidenhair Spleenwort. *Bifurcum.* W. This differs from the usual character of the Maiden-

hair Spleenwort in having its head or apex two or three times forked. Plants have been found in the hedge-bank of a lane between Alston and Churchill in the parish of Chardstock, and also in the parishes of Kilmington and Shute.

2. Lobed Maidenhair Spleenwort. *Lobatum.* M. The peculiarity of this variety consists in having the leaflets, especially those in the middle of the frond, furnished with two broad inversely egg-shaped lobes. The lowest ones are sometimes divided to the mid-rib. Hawkchurch. Shute. Stockland.

3. Moule's Maidenhair Spleenwort. *Moulei.* S.* This variety has a linear frond and is rather smaller than the ordinary form. The leaflets also are small, deeply cut on the edges and often to the mid-rib, having two or three triangular lobes on each side. The leaflets also abound in fructification, which is rarely the case with Asplenium, Incisum. This is a tiny and elegant plant two or three inches high. M. Hawkchurch.

BLACK-STALKED SPLEENWORT. *Asplenium adiantum nigrum.*

See page 57.

1. Forked Black-stalked Spleenwort. *Furcatum.* A plant has been discovered growing on a hedge-bank of the turnpike road on the Axminster side of Musbury with *all its fronds* forked at the summit. The divisions were blunter at their ends, and the clusters of seed nearer the margin of their leaflets, and in a shorter line than in the ordinary form.

2. Sharp-leaved Black-stalked Spleenwort. *Oxyphyllum.* M. This is a coarse plant of moderate size with lance-shaped fronds and decurrent pinnæ. The lowest pinnæ have a tendency to be less than those above them. The pinnæ are short, very oblique in consequence of the upper leaflet close to the mid-stem being larger than the one below it; this upper leaflet is also more distinct and distant than the rest, which run into one another: the teeth are deep, narrow,

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* Stansfield originally named this variety.

and acute. Pinnæ also are occasionally missing and a spine supplies its place. Some fronds have a little horn at their apex. M. Thorncombe: Holditch.

HARTSTONGUE. *Scolopendrium vulgare.*

See page 67.

The different varieties may be divided into six groups—
1. Those curled or plaited. 2. Those lobed or notched on the edge of the sides of the frond. 3. Those having the head or apex lobed, crested, or otherwise changed, or having the stalk branched. 4. Those affected on the upper surface of the frond. 5. Those affected on the under surface. 6. Those having different fronds on the same root-stock.

CURLED VARIETIES.

1. Curled Hartstongue *Crispum.* If we look carefully over the hedge-banks, we shall sometimes see this Fern very much curled or waved and plaited like the old fashioned frill of a shirt. Moore says "the frond is always barren." It attains the full size of a foot or more in length and about two inches broad, the margin being parallel or nearly so. Elegant as this variety is, dried specimens do not appear to advantage, as the necessary pressure destroys all its beautiful curls.

2. Broad Curled Hartstongue. *Crispum-latum.* M. This is soft to the touch, has a glaucous green colour, is elegantly curled, almost eight inches long, three or four broad, and broadest in the middle; it is heart-shaped at the base with very large ears or auricles, and has on the edge of the frond broad and roundish notches, which have a slight tendency to be pointed in the middle. M. Hawkchurch.

3. Waved Hartstongue. *Undulatum.* M. This has the margin much less curled or waved than the two preceding varieties, and the fronds narrower, and, unlike the two preceding, constantly fertile. The fronds are heart-shaped at the base, acute at the apex, the larger ones nearly a foot long and about an inch and a half wide. The plant is often confounded with the first variety. This is not uncommon.

4. Waved Variegated Hartstongue. *Variegatum.* W. This plant is waved, as the preceding, and beautifully variegated with streaks of dark green on a light cream coloured ground. These streaks form a ridge on the surface of the leaf. M. Wootton.

VARIETIES LOBED OR NOTCHED ON THE EDGE OF THEIR SIDES.

5. Much-cleft Hartstongue. *Polyschides.* Let us make another careful survey and look with an eagle eye into every crank or corner of our edges and ditches, or shady walls and wells, and we may chance to light on the Much-cleft Harts-tongue. The edges are a little crimped, but the great peculiarity here is, that the fronds are gashed and torn on each side, and jagged and notched on their edges, with gaps between the lobes or, as Moore describes it, an open sinus. The fronds are narrow, strap-shaped, from six inches to nearly a foot in length, and about three fourths of an inch wide. This Fern did not escape the notice of Ray, the great father of English botany, who designated it "Bobart's much-cleft Phyllitis tortured by every lobe being jagged."* This variety is by no means uncommon.

6. Fissured Hartstongue. *Fissum.* This is wider than the much-cleft form about an inch and a half to two inches wide and is somewhat waved so that the gaps between the lobes are not very apparent. Some of the veins are netted and the clusters of spores are in oval patches scattered irregularly over the plant. The summit is usually blunt. Hawkchurch, Seaton, Uplyme, Whitchurch.

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* Phyllitis polyschides laciniis singulis cruciatum decussatis Bobartii.

7. Broad Fissured Hartstongue. *Fissum-latum.* This also is irregularly cut on the margin, narrowing to the base and acute at the apex. Fine specimens are four inches wide in the middle. M. Hawkchurch.

8. Laciniated Hartstongue. *Laciniatum.* W. The frond varies from three to nine inches in length. The leafy part is very much torn and forms roundish lobes which occasionally protrude themselves. It is narrow except near the apex, where it is of the usual width. Some plants have fronds divided at the apex. Sometimes a little horn appears at the end of the mid-rib and occasionally another horn beneath. *The large rounded lobes* protruding beyond the narrow parts are the chief characteristics of this variety. Chardstock, Alston, Hawkchurch.

9. Suprasoriferous Hartstongue. *Crenato-lobatum.* This has the margin, especially at the upper end of the frond, notched with roundish lobes, but not torn as the preceding. The frond is also a little waved. The clusters of spores appear on the upper surface as large and distinct as those on the under surface.

10. Earless Hartstongue. *Resectum.* M. This is remarkable from the absence of the auricle or ear-like lobe, which is generally at the base of this species of Fern. The margins are slightly waved and lobed, and the lobes are coarsely toothed. The ears appear to be cut off and slightly rounded at the corner so that the Fern has a lance-shaped outline. M. Axminster.

11. Laciniated Earless Hartstongue. *Laciniato-resectum.* W. This has the round, torn lobes of the laciniated variety, and has no auricles as was mentioned of the preceding. Sometimes, on one side of the midrib, the leafy part seems almost to have vanished away, and what remains is torn and jagged and otherwise unseemly. It frequently happens that at the top of the plant, for an inch together, there is no leaf at all except the mid-rib, and there are similar irregularities near the stalks. Axminster, at Cloakham Bridge.

12. Lobed Arrow Hartstongue. *Sagitato-lobatum.* M. This Fern is arrow-shaped at the base: the basal lobes are long, acute, directed downwards: the lobes at the sides are pointed and the head branches into flat, acute segments. M.

13. Barren Hartstongue. *Sterile.* W. To a casual observer there is nothing peculiar in this variety. There are, however, some points deserving notice.—1. It never has fructification. 2. It has a greasy appearance. 3. It has scarcely any heart-shaped lobes at the base and is of a papery texture. 4. Some veins branch near their base, others near their apex, and others not at all. M. Wootton.

VARIETIES HAVING THE APEX LOBED, CRESTED, OR OTHERWISE CHANGED, OR HAVING THE STALK BRANCHED.

14. Lobed Hartstongue. *Lobatum. Deak.* When we find the Hartstongue forking at its head once or oftener, and this constantly happens in all the fronds of the plant, this may be pronounced to be the lobed variety. The mid-rib also divides with each division and the fructification lies on each side of the mid-rib. Not uncommon.

15. Transversely Lobed Hartstongue. *Transverso-lobatum.* M. Here the lobes are curved so as to cross each other, and the lobes are generally again lobed at their apex.

16. Much divided Hartstongue. *Multifidum. Gray.* This differs from the lobed variety not only in having some fronds much more cleft at their points instead of being simply forked, but also in having the primary lobes wider and splitting into several smaller segments. Some fronds, however, are regular, and herein it differs from the crested variety as also in lying in a dense, flat head, and in not being curled or twisted together, with a tasseled crest. Axminster. Chardstock. Combe. Wadeford. Lyme. Seaton.

17. Fingered Hartstongue. *Digitatum.* W. This differs from the preceding in having both the stalks and the leafy parts branched. The leafy parts are branched both near the base and in the higher part. The branches or divisions lie flat, or in one plane, being hand-shaped, though they are much crowded and overlap one another. Old Gerarde calls this "the Finger Harts-tongue, Phyllitis multifida." In his description he states, "that the leaves

thereof are cut or jagged like a man's hand, or the palm of a brow antler of a deare,* bearing neither stalke, floure,† nor seed." He is incorrect in stating that there is no fructification, as our plants are fruit-bearing, but the clusters are not so large as in the ordinary form. This is an elegant variety, and in a damp, shady situation thrives, and is improved by cultivation. Hawkchurch. Yarcombe.

18. Crested Hartstongue. *Cristatum.* C. This is a handsome Fern. The fronds are from four inches to a foot high, and an inch and a half wide: the base is heart-shaped, and the head has a wide spreading tuft or crest of curly segments, an inch and a half to two inches in expansion: eight or ten of these tufts form the head of the fronds, which give the variety a most elegant appearance. Chard: near Wadeford. Hawkchurch. Lyme. Monkton Wylde. Seaton.

19. Branched Crested Hartstongue. *Ramoso-cristatum.* C. The stalks are branched and the fronds have a narrow linear leafy appendage to the mid-rib until they expand and form a much-cleft crested and curly head with here and there flat and projecting lobes. This is a dwarf variety. M. Hawkchurch. Monkton Wylde.

20. Crested Crosswise Hartstongue. *Cristato-transversum.* M. This has all its frond regular with the exception that it forks about an inch from the apex and has two crested heads so twisted that they cross each other. The frond is about a foot high. M. Hawkchurch.

21. Branched Hartstongue. *Ramosum.* Willd. In this variety the stalk starting singly from the stock (caudex) afterwards branches, and on each branch a separate frond arises, as appears in the woodcut. These fronds often branch below and again near the apex into a dense, much-cleft, curly tuft. The fronds are short, not more than six inches high. Hawkchurch and Musbury.

22. Greater Branched Hartstongue. *Ramosum-majus.* C. This is a fine, vigorous variety, a foot and a half in height: the fronds are not branched, but the stalk only, which is very thick and divides either below or near the frond or both. The fronds are of the ordinary form and often cross each other. M. Axminster.

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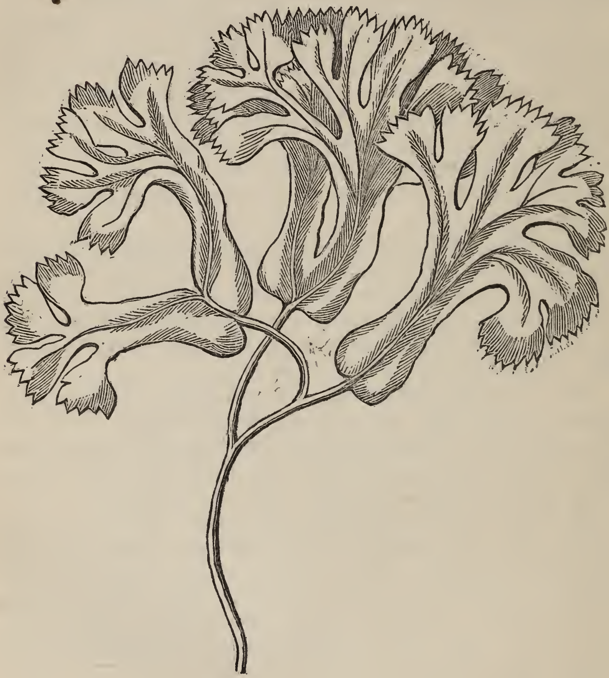
* Deer. † Flower.

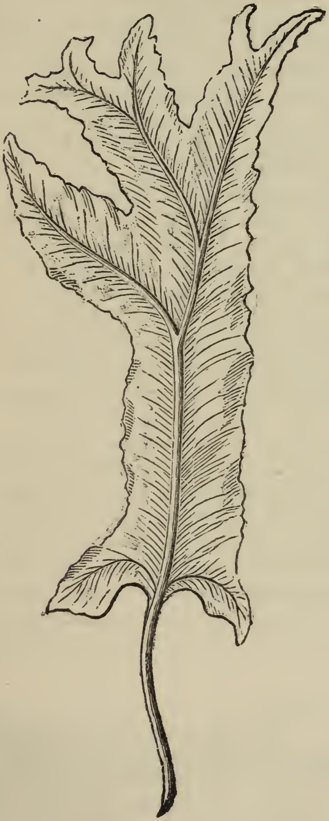
23. Moly's branched Hartstongue. *Ramosum Molyi.* W. This is as large a plant as the preceding and much resembles it, but differs in having the frond waved, with a large, much-branched, leafy, and waved head. This is designated in Lowe's work Undulato-Ramosum. M. Thorncombe.



BRANCHED HARTSTONGUE.

24. Irregular Branched Hartstongue. *Ramoso-irregulare* W. This plant is often branched in its stalk and in the lower part of the frond: about an inch or two from its summit it branches again into three or four acute divisions.

The frond is regular, until it begins to branch, when the margins have roundish notches. In the uppermost divisions



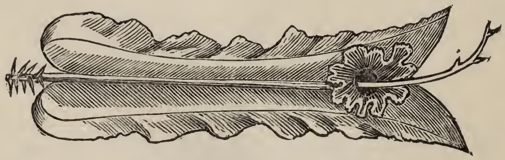
CRESTED ARROW HARTSTONGUE.

it has here and there projecting teeth, and if we examine the under part of the frond, we shall find that the outer skin recedes a little from the margin. There is no regularity in the Fern, neither is there the least tendency to its being crested. M. Chard, at Tatworth.

25. Crested Arrow Hartstongue. *Sagitato-cristatum.* C. Here the frond is of ordinary dimensions with an arrow-shaped base, with its sides wavy and sometimes lobed, its head much-cleft and frequently crested, as appears in the woodcut. He who meets with this Fern will have no difficulty in deciding what it is. It is indeed a handsome plant. M. Hawkchurch.

26. Splitting Hartstongue. *Multiferum.* W. This is a strange kind of Fern about nine inches long. The lower part is nearly regular, half-way upwards the mid-rib begins to enlarge itself and a furrow appears in its middle and sometimes leafy appendages upon it: an inch higher it splits in two and a line or two above this point a little horn appears on the upper side of the split midrib: an inch higher still one side rises above the other and forks at the apex. All the fronds do not assume this curious appearance. M. Hawkchurch.

27. Pocket-bearer Hartstongue. *Peraferum.* W. As there is the pitcher plant in foreign lands, which holds water, a refreshing beverage, for the thirsty traveller, so we have a Fern which has a pocket behind its head large enough to contain the little coins of the people of Lilliput. The plant is heart-shaped at the base, about two inches wide, four inches high, blunt at the apex, and having behind it the pouch or pocket already described, and sometimes a little horn appears. M. Hawkchurch. Widworthy, at Wilmington.



MOLY'S POCKET-BEARER HARTSTONGUE.

28. Moly's Pocket-bearer Hartstongue. *Peraferum Molyi.* W. This has its outer skin (epidermis) on the under

surface of the frond receding from the edge, and near the apex a pocket, as represented in the woodcut, from the centre of which issues a horn that has two or three tiny thorns. The length of the frond is eight inches and of the pocket an inch and a half. The width of the pocket is nearly an inch and its margin is curled. This is an elegant and choice Fern called by Lowe Sinum. M. Hawkchurch.

29. Connecting Hartstongue. *Connexum.* W. In this variety the clusters of spores have scarcely any covering, and the frond is linear. Hence it is a connecting link between Moore's varieties, Gymnosorum and Lineare. The lower part of the frond is regular and subdivides into narrow, flat, angular segments an inch or an inch and a half long, which gradually taper to sharp points and are in all cases longer and more distinct than in the other much-cleft Hartstongues. M.

30. Narrow-leaved Forked Hartstongue. *Attenuato furcans.* W. This has a narrow frond, an inch wide in the middle, tapering both upwards and downwards until it becomes not more than one fourth of an inch wide: when thus narrow it throws out two or three flat angular forks on each side while the frond itself runs on and ends in an acute summit. The mid-rib also divides and passes into the forks and the remaining portion of the frond. The forkings are about an inch long. If there were not these projections at the apex, the frond would be lance-shaped. The margin is irregularly jagged and the clusters of spores are close to the margin and sometimes appear on the upper surface. The plant is proliferous. M. Hawkchurch.

VARIETIES HAVING THE UPPER SURFACE OF THE FROND AFFECTED.

31. Ridged Hartstongue. *Jugosum.* M. The peculiarity of this variety consists in having ridges on the upper surface of the leaf opposite to the clusters on the under surface. The clusters sometimes appear on the upper surface on these ridges. Our plants are generally smaller

and narrower than the ordinary Hartstongues. Chard: Ilminster Road.

32. Supralineate Hartstongue. *Supralineatum.* M. Here is on the upper surface not a ridge, but a line formed by the receding of the outer skin from the edge of the leaf and this line running longitudinally or somewhat parallel to the mid-rib over a portion of the frond. M. Hawkchurch. Lyme. Monkton Wylde. Seaton.

33. Pimpled Hartstongue. *Muricatum.* M. This is regular in size and form with its margin notched or somewhat lobed. The veins bear elevated points or pimples here and there over the upper surface of the whole frond. M. Axminster, Thorncombe, at Forde Abbey.

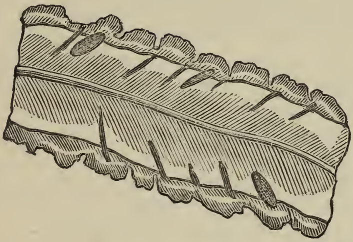
34. Margined Pimpled Hartstongue. *Muricato-marginatum.* P. This was found by Mrs. Thompson of South Lawn, Exeter, near Netherton, Sir Edward Prideaux's seat. It resembles the two preceding varieties in having both a raised line on the under and pimples on the upper surface. The margin is finely fringed. Farway.

35. Irregular Pimpled Hartstongue. *Papilloso-irregulare.* Monkman. This has projecting points or pimples on the upper surface. It has either the usual auricle or else a lobe at the base, above which the leafy portion is all but wanting for a third or half of the frond: the rest of the frond is almost regular in its outline, which is about an inch wide. M. Thorncombe.

VARIETIES HAVING THE UNDER SURFACE OF THE FROND AFFECTED.

36. Margined Hartstongue. *Marginatum.* M. Good specimens of this Fern are a foot or more high, an inch wide, and without the auricle at the base: the apex is acute and the margins are lobed or notched. On the under surface the outer skin of the leaf recedes and forms an inner line nearly parallel to the edge of the frond, as represented in the woodcut. Hence, such fronds are said to be marginate.

The clusters of spores frequently extend outward beyond this inner line and the spores taken from the outer part produce curious varieties. Axminster, Charmouth, Lyme, Seaton, and Wootton.



MARGINED HARTSTONGUE.

37. Partly-margined Hartstongue. *Sub-marginatum.* In this plant the under surface of the frond only here and there has the inner line; the fronds are generally of the usual size and form, though the margins are so jagged, or notched, that the practised eye of a passer-by can perceive it to be a variety. Sometimes the clusters of spores are on the upper surface of the leaf. Axminster, Chard, Colyton, Combpyne, Kilmington, Seaton, Stockland.

38. Turgid Hartstongue. *Turgidum.* W. This is so called from the thick or muddy appearance of the cellular tissue between the veins. The frond is leathery, lobed, notched, or toothed, one and a half or two inches broad, having more or less a line on the under surface. The head is sometimes forked: the base heart-shaped. M. Chardstock, at Tytherleigh.

39. Horned Hartstongue. *Cornutum.* M. The fronds are from six to ten inches long, slightly waved, abruptly rounded at the summit, and having the mid-rib running out on the under surface into a horn, as represented in woodcut, Page 130. The margins are deeply lobed and the lobes minutely toothed. Chard, near Wadeford, Chardstock, Hawkchurch, Seaton.

VARIETIES HAVING DIFFERENT FRONDS ON THE SAME ROOT-STOCK.

40. Variable Hartstongue. *Variabile.* W. Here we have different fronds on the same root-stock. Some are quite regular, with an unequal heart-shaped base, and just below is a kidney-shaped leaf, either with or without a stalk. Some fronds consist of one or two short kidney-shaped lobes as round as a penny with a gash beneath. Some are branched in the stalk, others near the base, and others near the head of the frond. The base is usually unequal and has one of these kidney-shaped lobes. M. Axminster, Charmouth, Hawkchurch, Seaton, Thorncombe, Wootton.

41. Many-formed Hartstongue. *Polymorphum.* W. This plant, too, has different fronds, which are remarkable for their great breadth. Some are regular, some are notched with rounded lobes on the upper half of the frond, and throw out a side branch almost as large as the main part; some are rounded and waved with an obtuse bulging, like an arrested branch, near the base or at the side, some have a separate but overlapping kidney-formed lobe at the base. These all are from six inches to a foot in length. Some being shortened are two or three inches long, having the apex split with kidney-formed, overlapping lobes, or roundish with a conical elongation in the centre; some are branched at the base into short forking branches so that they are either regular or much cleft at the tip, or branched, or have two or more of these characters combined. M.

42. Abrupt Hartstongue. *Abruptum.* M. This is remarkable for its abrupt apex, for its mid-rib not reaching the highest point, but being at least half an inch from it, and for the width of the frond being greater near the tip than at the base. It is from two to eight inches high and from an inch to three inches wide. Sometimes the apex is divided, and the plant occasionally produces dwarf, doubly-kidney-formed fronds. Thorncombe.

NORTHERN HARD FERN. *Blechnum Boreale.*

See page 71.

1. Forked Hard Fern. *Bifidum.* W. In this plant the tips of the leaflets are more or less forked into two or three segments, but not uniformly, neither is every leaflet affected. The fronds are a foot long. Axminster, Offwell, and Seaton.

2. Anomalous Hard Fern. *Anomalum.* M. This is of a thin and papery texture. All the fronds are similar and fruit-bearing, have narrow segments, arch most gracefully, and are neat and elegant in their appearance. They vary from six inches to a foot in length. M. Hawkchurch.

3. Divers-leafed Hard Fern. *Heterophyllum.* W. This has two sorts of barren fronds: some of the ordinary form and others more or less altered in size and appearance. In the altered fronds the leaflets are here and there shorter, narrower, and toothed or serrated, or assume a semicircular form, with the edges finely cut, and this for some length without interruption, though generally some longer leaflets appear at intervals. The fertile fronds are similarly affected. Axminster and Thorncombe.

4. Corroded Hard Fern. *Erosum.* M. As iron which is corroded by rust, or cheese which is nibbled by mice, such is the aspect of the edges of the leaflets of this variety. The plants are from four to six inches in height. M. Thorncombe.

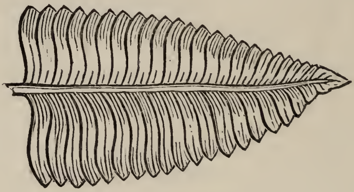
5. Horned Hard Fern. *Cornutum.* M. This in all respects resembles the ordinary form except that each frond, barren and fertile, terminates abruptly and the mid-stalk runs out into a horn-like projection. M. Shute.

6. Tiled Hard Fern. *Imbricatum.* M. Both barren and fertile fronds of this variety have their leaflets overlapping each other as represented in the annexed woodcut. The fronds taper below and have their mid-stem and stalk channelled and are about six inches high. M. Hawkchurch.

7. Serrated Hard Fern. *Serratum.* W. This is a large and tall variety. The barren fronds are a foot high: the fertile ones higher, and often three inches wide in their

centre. Some leaflets of each kind of fronds are coarsely serrated. This is not unfrequent in the neighbourhood. Axminster and Uplyme.

8. Partially-serrated Hard Fern. *Subserratum.* M. This is a more elegant though not so fine a plant as the preceding. It is from six inches to a foot in height, from three quarters to an inch and a quarter wide. The fronds droop and the leaflets curve forward like a hook, and their under edge is notched with shallow, rounded lobes. M. Hawkchurch.



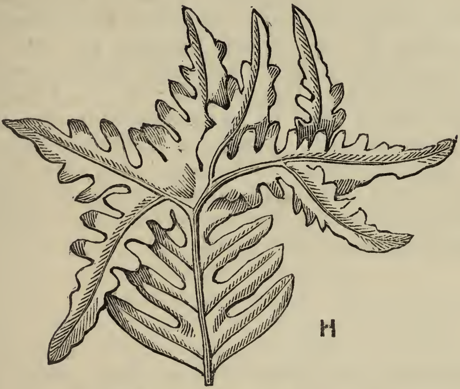
TILED HARD FERN.

9. Neatly-adjusted Hard Fern. *Concinnum.* M. The lower part of the barren fronds for two or three inches is linear, and generally consists of rounded leaflets or lobes, toothed at their ends, while in the upper part the leaflets are longer, but unequal in length and sometimes blunt, sometimes acute, and sometimes much shorter and rounded like those at the base. The fertile fronds, too, in the lower part have a narrow, leafy, sinuous wing close to the midstem in the lower part, while in the upper part there are some longer lobes or leaflets, but even here the frond is not half an inch wide. M. Thorncombe.

10. Much-divided Hard Fern. *Multifidum.* W. This has *some* fronds which divide once or more at the head but by no means with any uniformity. Axmouth, Chardstock, Hawkchurch, Wootton.

11. Much-forked Hard Fern. *Multifurcatum.* M. In this variety some fronds divide near the base: the heads of the branches of these and also of the fronds which are not so branched are forked many times so as to form a moderate-sized, flat tuft. There is no regularity in the

segments thus forked, but they generally end in a sharp point and are notched on their edges in a ragged manner. This is a fine, handsome plant. M. Hawkchurch.



MUCH-DIVIDED HARD FERN.

12. Branched Hard Fern. *Ramosum.* K. While in the Branched Hartstongue the stalk always divides, in the Branched Hard Fern this is seldom the case. The midstem, however, throws out a number of branches which form beautiful, curly tufts at their tips. M. Hawkchurch.

13. Curled Hard Fern. *Crispatum.* M. In this variety the leaflets are blunt and curled, or wavy and crowded together. This is a small form about four inches high. M. Hawkchurch.

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BRAKE. *Pteris Aquilina.*

See page 73.

1. Much-divided Brake. *Multifida.* W. Here we have the tips of some of the branches or leaflets forked or divided into three or four segments. Simple as this difference may be, it strikes the eye of the beholder and the Bracken appears an altered plant. Charmouth, at Greenway Head.

2. Curled Brake. *Crispa.* W. This is so densely and peculiarly curled that to an unobservant eye it would appear to be blighted. Axminster, at Secktor.

3. Variegated Brake. *Variegata.* Of this two forms have been found: one at Charmouth peppered all over with white dots, another at Hawkchurch having a light streak in the leafy portion of the frond. M.

An account has been given of very many varieties or abnormal forms of various species of our Ferns. In some of these the difference is very slight; in others so great that a person uninformed would think it impossible that they constitute the same species. It may be very properly asserted, that many are monstrosities, not varieties, and therefore not to be noticed. If, however, we cast away all monstrosities and deem them not worthy our consideration, our gardens and our shrubberies would lose much of their beauty and elegance. What is it that makes the borders and parterres of our nobility and gentry appear so lovely? For what are handsome prizes offered at our Floricultural and Horticultural Meetings? What is it that the nurseryman and gardener strive to produce by dint of the most skilful cultivation? Monstrosities. The single rose and stock is nature's production; the double rose and double stock are monstrosities, deviations from nature's ordinary course. If the matter be considered in a scientific point of view, very few that have been mentioned are varieties. If we meet with one man in England, and another in India, seven feet and a half high, and with a dwarf, in like manner, as short as Tom Thumb, we should not consider them a variety of the species man, but as an extraordinary appearance, some *lusus naturæ*, some deviation from the usual course of things. Moore says, "That most of these monstrosities are produced from spores (seeds)." We know that in the productions of nature there is always a tendency for the offspring to represent its sire. A tall father has frequently a tall son. The Insurance Companies are generally averse to insure a person's life when the father or mother has died of consumption. Why is this? Because they consider that the child's constitution will resemble that of the parent. In like manner, it is not surprising if a plant which has a curious appearance, should sometimes beget a progeny like itself. As, however, the primitive form is often produced from the spores, we can hardly consider them a variety, much less a distinct species.

One further remark must be made. Let not the student of nature's works be perplexed, because he finds it more difficult to discover these deviations from the ordinary form than to ascertain the species. It is the very essence and character of such, that there should be a gradual approximation to the original standard. The matter, in fact, is like the shifting sand of the ocean. Some Ferns will appear to come nearer to the typical plant, and others to the variety. There are intermediate steps to prove the beautiful gradation in God's works. There may be a great difficulty in coming to a decision, and, after all, we must be satisfied, whether we study the animal or vegetable tribes, if we have *something like* the features and outlines furnished by the most approved authors, and in accordance with common sense.

In bringing to a close our remarks on the Ferns and their varieties found in the parishes through which the Axe and its tributaries flow, and also in the parishes of Charmouth, Lyme, Uplyme, and Monkton Wylde, with neighbouring parishes, we crave the indulgence of our readers, while we make another attempt to facilitate the discovery of the different plants. Let it again be observed, that all our Ferns except the Adderstongue and Moonwort are circinate in their vegetation, *i.e.*, before the fronds are expanded, the buds are coiled together in a circular manner. Any one who casts his eyes on our various hedgebanks in the spring, cannot fail to notice how differently the Ferns seem to come into leaf from any other plant. The Ferns have the seed vessels on the back of the frond, except the Flowering Ferns, which are the Adderstongue, the Moonwort, and the Royal Fern, Osmunda Regalis, and all except these have, as is seen under a microscope, their bags of spores or seed surrounded by an elastic ring. If, therefore, the Fern is not circinate in its vegetation, nor has the fruit on the back of the frond, nor its bags of spores surrounded by an elastic ring, we may rest assured that it is the Adderstongue or Moonwort. If it is circinate, but has its fructification on the ends of the fronds or their branches, and still no elastic ring, then we may be satisfied that it is the Royal Flowering Fern. These have no covers to their fructification. We have one more species that has no cover. Now, if we see a Fern that has its masses of spores on the back of the leaves without a cover, we may be confident that it is the Common Polypody, or Beech Fern. If it has a round cover with a slit in it and attached at the inmost point of that slit, then it is a Shield Fern, *Lastrea:* if it has a round cover without a slit and attached at the centre, then it is a Prickly Fern, *Polystichum.* If it be a linear cover, and that a curved line, and attached the whole length, then it is that genus of the Spleenworts which is called Lady Fern, *Athyrium.* If the cover be a straight line and attached along the sides of the veins of the leaflet, then we have all the other Spleenworts, *Asplenia.* If the straight cover be in pairs, then it is a Hartstongue, *Scolopendrum:* if it is obscure and the masses of fruit are hid by scales, then it is the Scaly Spleenwort, *Ceterach.* When the straight linear cover is parallel with the mid-rib, it is a Northern Hard Fern, *Blechnum,* and when it is on the margin and originates from the bent-in edge of the frond, it is Brake, *Pteris.*

It is hoped that these hints, as well as those given in the commencement of the volume, will serve to remove any difficulty that may arise in attempting to discover the various Ferns of the neighbourhood. Several have been drawn already to amuse themselves with this simple study as a recreation, in consequence of our observations previously thrown out in a local newspaper. The endeavour has been made to make the subject understood by every class, and it is the source of no little pleasure to find, that not only the gentry, but the humble classes and mechanics have felt interested in the wild productions of their own locality.

THE CULTIVATION OF FERNS.

There are five methods whereby various Ferns may be obtained. 1. Sowing the spores. 2. Dividing the plants. 3. Taking off bulbs and putting them into the ground. 4. Laying the tips of the fronds. 5. Transplanting. With respect to transplanting, many observations have been already made. To the other methods the attention of our readers shall be more especially directed.

1. Sowing. In order that the care requisite in sowing may be better understood, the way in which germination takes place needs to be explained. A Fern is said to be a not-flowering plant, a plant in which the seed is not produced by impregnation. Every flower-bearing herb, shrub, or tree, has in its flowers a stamen and a pistil. On the highest part of the stamen is the anther, which contains a powder or dust, called by Botanists, pollen. In like manner on the top of the pistil is the stigma, on which lies a glutinous substance. A perfect seed is produced by the dust of the anther falling on the gummy substance of the stigma. This is called impregnation. In some plants one flower has the stamen, and another the pistil. In this case the dust from the anther of the stamen must be brought some little distance to the stigma of the pistil or no fruit will be produced. This is done by the operation of the air, or through insects. In most of the sedges the stamen flowers are seated above the pistil flowers, so that the powder naturally falls down on the stigma, which is ready to receive it. In the cucumber, the wind helps nature, and carries what is necessary to its destination. When the plant is under a frame, the skilful gardener remedies the

defect arising from the wind being excluded, by taking the stamen and placing the dust on the stigma, and thus a cucumber is produced. As a still further illustration, the date has not only distinct flowers, some of which bear only stamens, and others only pistils, but has this further peculiarity, that no one of these trees bears both kinds of flowers. The Egyptians only cultivate the trees that have fruit-bearing flowers. Every year they send to Abyssinia, at the proper season, for branches covered with the other flowers and hang them up on their own date trees, and thus impregnation takes place. When the great Napoleon made his celebrated invasion, that people were so much engaged in defending themselves, that they neglected to fetch these branches of flowers as they had hitherto done. What was the consequence? During that year there was not a single date in Egypt. Now Ferns are considered not-flowering plants, and therefore nothing like impregnation is supposed to happen to them. This seems strange, as some of them are very large, even magnificent forest trees. They also differ from most others belonging to this portion of the vegetable world in not having a cellular, but vascular tissue, and in possessing woody fibre. Hybrids, also, are occasionally produced. In flowering plants a hybrid is said to be formed by the pollen of one species falling on the stigma of another. Thus if a nurseryman has a choice turnip,* and wishes to save the seed of it, he is very careful that no other species of the genus should blossom near it, lest, as the common saying is, the bees should inoculate it, *i.e.* carry the powder or pollen of the one to the stigma of the other, and the seed would consequently produce a hybrid or inferior plant. If there are then hybrids in Ferns, and experienced gardeners maintain that there are, it is probable that something similar occurs to what happens in flowering plants. What seemed so likely, has been ascertained to be true by interesting experiments. There is, however, this difference, that in ordinary cases impregnation takes place before the fruit is formed, while in Ferns it is after the production of the spores. It appears that when the spores germinate, a thallus or leaf-like scale arises. On this scale appear what corresponds both to the anthers and stigmas in flowers. The first are called antheridia, and the second ovules. The dust or pollen of the one duly affects the other. If, therefore, we suppose that the spores of the different species are near one another, and afterwards these organs of reproduction arise, it can easily be conceived how the pollen of one species may fall on the ovule of another, and thus a hybrid Fern be formed.

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* This is mentioned because there are so many allied species, cabbages, charlock, &c., through which hybrids may be formed.

It is now evident, that who ever wishes to have a particular Fern, must be very careful not to sow the spores of any other in the same place. The agriculturist knows how he damages a crop of corn by selecting bad seed. The gardener, too, will have a sorry exhibition, if he thoughtlessly intermixes his spores. These rules apply to the foreign as well as the beautiful productions of our own neighbourhood. The spring is the best period of the year for sowing. Small pots should be selected. Half the pot should be filled with earthenware broken very fine. This will prevent the water stagnating. A thin layer of bog moss (sphagnum) should be spread over these sherds. A compost should then be made of *loose* bog earth and white sand. The bog earth must first be crumbled and placed in a hot oven, that any lurking organic matter or worms may be destroyed. When this compost is duly prepared and thrown on the bog moss to less than an inch from the highest part, it should be watered. The spores should then be sown, but care must be taken that they be not too thickly strewn or too much watered, as they are apt to crowd and kill one another. After the first time the water should never be placed on the earth, but in a saucer underneath. A plain flat piece of glass, or a bell-glass should be put on the pot, which should be placed in a light but shady place. When the young plants appear, and they appear in green scales almost transparent, a little air may be at first admitted, and that increased by degrees. If they are too thick, they must be thinned by taking off patches here and there, and planting them in similar pots. As this is apt to disturb them, it is much better not to sow them too thick at first. Some sow them on little pieces of sandstone or broken brick, but in such cases there is great difficulty in transplanting. As the plants grow, they must be adapted to their natural climate, to the greenhouse, stove, or open air, but in all cases moisture and shade are desirable. Stagnant water must be avoided.

2. Ferns may also be propagated by dividing the root-stock. If it be a creeping root-stock, it should be so divided that each portion has a frond or two on it, and some fibrous roots. They should be set in loose soil made of sand, bog earth, and leaf mould. No great depth of this earth is required, neither much watering, as these are air plants, chiefly deriving nutriment from the air. Such also grow well if suspended on blocks of wood, covered with damp moss, in a warm atmosphere ; or if placed in little chip mossy baskets full of chinks, they force their way through in an elegant and graceful manner. In the winter they should have still less water than in the summer. The Polypody is almost the only Fern of the Axe having a creeping root-stock which is suitable for such a mode of growth. If a similar attempt be made with the Brake, a young plant must be selected, and the root-stock must be cut short every autumn. The spinous Fern will not thrive under such management, as it bears a great resemblance in character to the other Shield Ferns. If the root-stock have a crown,* it should be narrowly examined whether there is more than one tuft or crown. If there are, then the knife must be applied, and the plant so separated that each separate part should retain a portion of the roots. Care must be taken not to cover the crowns, which is certain death to the plant. This requires a deeper soil, and more frequent watering. The spring season, just before its vital properties are resumed, is best adapted for such operations.

3. It has been noticed, pages 96 and 97, that some indigenous Ferns produce bulbs. This happens more frequently in exotics. These may be taken off and placed in pots with the other requisites, and earth prepared similarly to what was required for sowing. Little plants soon rise resembling the parents from which they are taken.

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* Root-stocks are said to have a crown when the Ferns grow in tufts or shuttlecock fashion.

As it is a great rarity to meet with a bulb-bearing wildling, any further observation on this mode of culture is unnecessary.

4. Others root from the tip of their fronds. As the old laurel is made to produce a young one by having its shoots pinned down and a layer formed, so some of the Spleenworts and other Ferns will grow if the tips of the fronds are fixed near the soil. The division of these must be done most carefully. Very seldom are fine specimens obtained by such means. It is probable that the new plant partakes of the age of that from which it is severed, and never enjoys the freshness of youth. For a similar reason, many have considered, with regard to grafting fruit trees, that the grafted shoot paticipates in the age of the tree from whence it is taken, and hence account for the good old-fashioned fruit of our forefathers becoming extinct. The only way of having what is young, strong and healthy, is by sowing occasionally.

5. Finally, as to transplanting, so much has been said in the course of the work that little more need be added. It must never be forgotten that the roots should not be broken. The natural situation, position, and soil, should be imitated. A lady wished to have some Maidenhair Spleenworts interspersed with her other Ferns. She placed earth in a saucer and planted them in it. They languished and died. She set the saucer in an erect position after inserting new ones; they now were in their natural place, and began to thrive, and exhibit their pretty round leaflets with black shining stalks. The vertical position may also have served to drain off the stagnant water, and for this reason have caused the experiment to be so successful. Most Ferns love damp situations and watering, but there should be a free circulation and no stagnation. They also delight in shade. Even those which grow in the sun, are finer and more luxuriant in a less exposed situation and in a northern aspect. Smaller species prefer a shallow soil, and few are fond of rich, highly conditioned, valuable ground. It is not on the banks of the Axe, or in our well-farmed, well-watered meadows, that our finest plants luxuriate, but in the poor, hungry, loose soil close to the streamlets, which feed and supply our river as

it wends its course onward, until it is lost among the waves of the English Channel. It may be further observed, that if the rich ground of the lowland country be altogether neglected and saturated with wet, it yields abundant crops of reed and sedge in dense, unapproachable masses. No Flowering Ferns or Shield Ferns there. The old writers used to say, that reed and fern have a deadly enmity one to the other. On the other hand, if there be woods in more elevated positions with loose soil, and in a damp situation with the water dripping down some gully, or dashing and foaming over some crag or rock so hastily and so grandly; nay, if there be only some huge hedge-bank in a narrow lane, with overhanging majestic oak trees, or, if there be on some great eminence an old ruin, which was once our forefathers' boast and defence, but is rapidly falling into decay, embosomed in thickets and forests, in such places as these may we expect to behold the Ferns in all their loveliness and grandeur.

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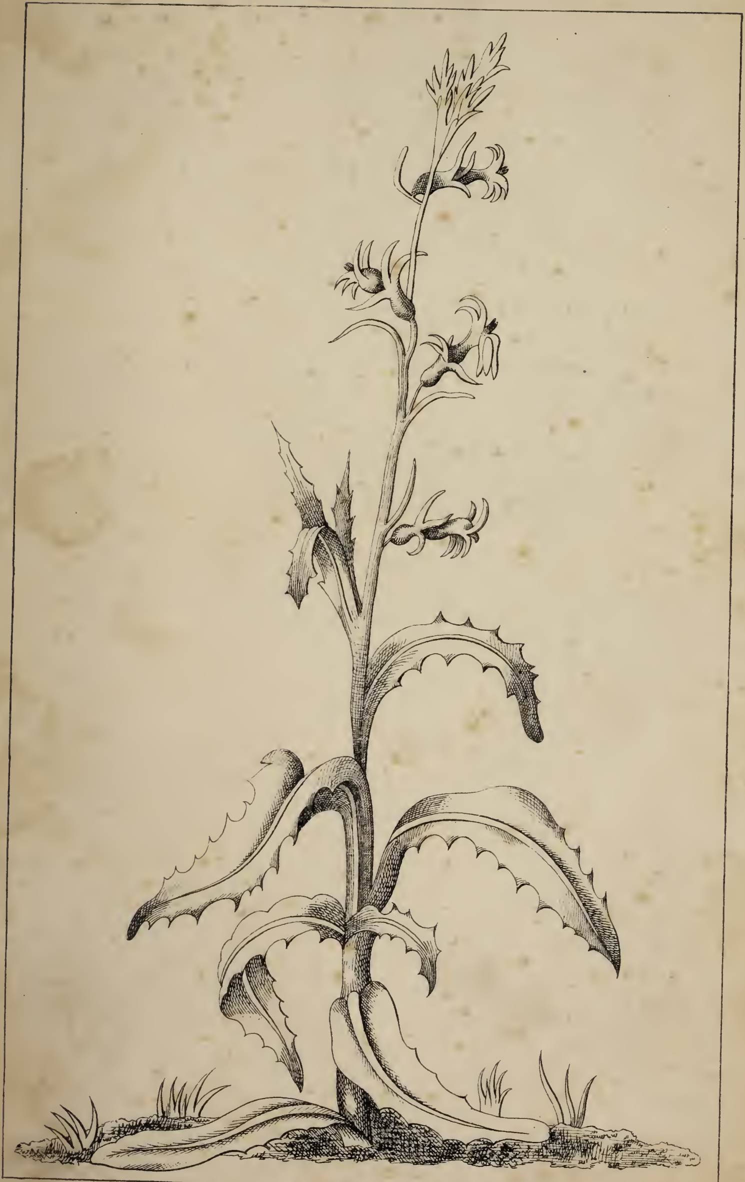
THE FLOWER OF THE AXE.

In describing the Flower of the Axe, we speak not of the blushing rose, nor the pale scented violet, nor the yellow cowslip, which, while it forsakes the greatest part of Devonshire, still thrives in our lovely vale. We speak of a flower of a blue colour and an acrid taste, so rare, so peculiar to a certain portion of this locality, that not all England can produce its like again. Neither has it ever yet received an English name. Its scientific designation is *Lobelia Urens.* The inhabitants call it "The Flower." If a stranger botanist be observed rambling abroad and gathering wild flowers at some little distance from the favoured spot where this child of nature has cradled itself, the natives will exclaim:—"You are in the wrong direction, sir, *The Flower* does not grow there." After searching and searching a little farther, perhaps he finds the plant, and, if not, after bestowing a trifling douceur, the peasant directs him to a place where he may gather a few stray specimens, so choice, so prized, because so rare. It belongs to the natural order Campanulaceæ and the tribe Lobelieæ. The tribe Lobelieæ differs from Campanulaceæ (the other tribe of the Campanulaceæ) in having the flower irregularly divided, and the anthers united. The Campanulaceæ have the flowers more or less bell-shaped, divided into five lobes, and inserted on the calyx. The Lobelieæ are principally found in the warmer parts of the world. Only two of this tribe are found in England. Even in Europe few of these plants grow. In the hotter countries of South America, the Cape of Good Hope, and in the North of India, they are seen in great luxuriance. They



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abound in a milky juice, which in all is acrid, and in some cases produces dangerous, or even fatal consequences, when applied to the surface of the body, or taken internally. Lobelia Inflata, or Indian tobacco, is one of this tribe. This plant is of a medicinal character, and has been found useful in cases of asthma and hooping cough, but it is very different from the kinds of tobacco, Nicotiana, which are *generally* used for smoking. Little did Sir Walter Raleigh imagine when he first amused himself with smoking, and when his frightened servant threw a basin of water in his master's face, because he feared the fire would consume him—little did the baronet imagine that in the course of three hundred years the pipe and cigar would be in the hands of the humblest peasant, as well as the proudest peer of the land. Lobelia Urens, the plant of the vicinity of Axminster, has not only acrid leaves—leaves which would sting and blister the tongues of those who chew it—but it has also this character more especially exhibited in its roots. The history of this plant is rather interesting.

In the reign of Charles II, Dr. How made the first attempt to give a complete list of British plants. In the year 1650, he published his Phytologia, which contained a description of twelve hundred and twenty. In this work our Lobelia is not noticed. The next catalogue of British Plants was made by Ray, one of the greatest English botanists. He first proposed what is called the natural system, and great as this discovery was, it is to be lamented that he obstinately continued in the old plan of separating trees from herbs. In the year 1660, he published a catalogue of the plants growing in the neighbourhood of Cambridge, which he says took him ten years to complete. This is a most valuable work, developing his great mind. It is curious how he complains of wanting a guide to direct him in determining species. In 1670 he published a catalogue of English Plants, arranged alphabetically, and in 1677 a second edition. In 1690 he published a new edition which he entitled, "A Methodical Synopsis of British Plants," and which he arranged according to his natural system. In 1696 another edition came out, and in 1724 it was republished by Dillenius. The edition published in 1696 is considered most accurate, and has been made the basis of all our Floras. Ray examined every plant with the greatest care, and his works remain a monument of his profound research and great intelligence. In neither edition of his Catalogue,* or of his Synopsis[a] of British Plants, is our Flower mentioned. Neither did any other botanist speak of it as growing in England until the time of Hudson. Hudson does not allude to it in his first edition, published in 1762. In 1778 a second edition was issued, in which a description was given in Latin, of which the following is a translation.—

TOM. II. Page 377.

"LOBELIA."

"Calyx five-cleft. Corolla monopetalous (consisting of a single petal) irregular. Capsule inferior of two or three cells."

Page 378.

"1. Lobelia Dortmanna."

"2. Lobelia Urens. A Lobelia with a stalk nearly erect; with the lowermost leaves somewhat round, notched, with the upper lance-shaped serrated, with the flowers in clusters."

Hudson next mentions that it was noticed as growing in France by Morison, in his Universal History of Plants, published at Oxford, in three parts, with large folio plates,[b] in the year 1680. He quotes the words of Morison, part II, page 467, which were also written in Latin.

"A Rapunculus with a vaulted corolla growing at Blois or Sologne in France, with a smaller blue flower."

He next quotes from another book of Morison, and from books of three other authors besides, in which it is designated "The stinging Rapuntium of Sologne."† viz:—Morison's

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* Catalogus plantarum Angliæ, A.D. 1670, and 1677. [a] Synopsis Methodica Stirpium Britannicarum, A.D. 1690, 1696, and 1724. [b] A friend has seen the plate containing the root, stem, and flower of Lobelia Urens, as published in this old book, in the British Museum, and pronounces it a perfect counterpart of the plant which grows at Kilmington. [c] The garden attached to the Castle at Blois was planted by Henry IV. Morison, an Englishman, having followed the disastrous fortunes of Charles 1. published a catalogue of the plants of this garden, which had acquired considerable celebrity. Its title was, Hortus Regius Blesensius, or Hortus R. Blesensis. Londin. 1669. He afterwards published the work first quoted by Hudson, The Universal History of Plants.

† Sologne is a parish of Blois. Its church is the largest in the town, and was rebuilt by Louis XIV. who converted it into a Cathedral.

Royal Garden of Blois.[c] Paul Boccone's Drawings and Descriptions of the rarer plants of Sicily, Malta, France, and Italy. * Ray's History of Plants, page 746. Monnier's Observations made on Natural History in the Southern Provinces of France, in the year 1739, page 131.

Lastly he brings forward a passage from Caspar Bauhin's work, published at Basle, in Switzerland, in the year 1674, in which it is described as "A draba with a blue flower, having a vaulted corolla."

Hudson concludes his account thus,—

"In English stinging. Habitat in mountainous meadows. Above Shute hill, between Axminster and Honiton. Mr. Newbery." †

Thus it appears that the flower was mentioned before the time of Ray, and by Ray himself as being found wild near Blois, in France, or as it is otherwise described, in the fields of Sologne. Indeed, in Morison's work, it is said to grow there "in all directions in moist heath-fields and old woods, and also in other parts of France towards Poitiers." ‡ "The whole plant" he remarked, "is very hot, especially its root; when chewed, it pricks and stings the tongue. It is wrongly called by Caspar Bauhin, a Draba with a blue vaulted flower, for it has no similarity to a Draba, the species of which have a pouch or silicule." §

As Hudson first described it as an English plant in 1778, and quotes as his authority Mr. Newbery, it is probable that Mr. Newbery discovered it between 1762 and 1778. At this time Mr. Newbery lived at Heathstock, in the parish of Stockland, and as he was a noted herbalist, and had the reputation of knowing every plant of the neighbourhood, was likely to notice the flower when journeying to Axminster. Polwhele says, || "The late Mr. Newbery

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* For an account of Paul Boccone, Caspar Bauhin, and Monnier, see p. 121 & 122.

† Mr. Newbery's Christian name was William. D. before Newbery in the Latin text stands for Dominus, Mr.

‡ "Towards Poitiers" is taken from Morison's other work, Hist. Plant. Univers. where he gives a similar account of the Lobelia.

§ Tota planta percalida est, præcipue ejus radix; masticata linguam urendo pungit. Crescit in humidis ericetis, passim inagro Soloniensi alibique in Gallia. Male a Casparo Bauh. in pin. pag, 110, collucatur pro draba flore cæruleo galateo, quum nihil habet affinitatis cum siliquosa draba, cujus draba est species.

Hortus Regius Blesensis, Auctus,
Auctore Rob. Morison.
Londini, 1669.

|| History of Devon. I. 81 n. A.D. 1797. a Ibid, p, 93.

was well known (particularly in Devonshire) as a botanist. Botany indeed was the only pursuit in which he was conspicuous." The same writer also remarks on the habitat of the plant. "On high grounds above Shute Common, between Axminster and Honiton. Mr. Newbery." There is a beautiful full length figure of the flower in Curtis's Fl. Londinensis, vol. 2, 183. Lord Webb Seymour, who sent it to Curtis in 1796, says it grows in a poor gravelly soil on the slope of a heath, called Kilmington hill, from the parish in which it is situated, and about two miles from Axminster. It is there confined to one spot not exceeding half an acre, close to the road, and about fifty yards on the right hand side in going from Axminster to Honiton. He could not find it anywhere else after a careful search.

The earlier and more correct editions of Withering (editions 2 and 3, A.D. 1787 and 1796) give that station, and on the same authority. Smith (Fl. Britt) gives Kilmington hill (on the authority of Curtis's Fl. Londin) two miles from Axminster close to the road. Smith adds in his later books, "Near Ottery St. Mary. Miss Burgess." Dr. Beeke, in his botanist's Guide, tells us that "Kilmington hill and Shute Common are the same place, and that the plant is confined to a spot of ground about 200 yards in length." The above is all the information afforded. Mr. Ravenshaw, late Curate of Ilfracombe, who has recently published a "New List of the Flowering Plants and Ferns growing wild in the county of Devon," has fallen into the mistake of separating Shute Common from Kilmington hill, and has added two other localities, Seaton and Woodbury Common. With respect to Seaton it is too near home for the flower to have escaped observation, if it had been growing there. As to Woodbury Common, it seems that Mr. Ravenshaw drew his information from the Supplement to the New Botanist's Guide, in which the mistake was first made. In that work, Mr. Abraham of Heavitree, near Exeter, is quoted as the authority for that station, who, upon inquiry, has kindly communicated in reply that this is "an erroneous statement." It may be remarked with reference to the flower being found growing at Ottery St. Mary, that this was not correct. Miss Burgess of Ottery, was on a visit at

Coryton House, near Axminster, when she observed it, and made others acquainted with the circumstance. Hence originated this mistake. No allusion has been made to a solitary plant's being found growing at Ashford in Kent, in August, 1850. Though a singular circumstance, it is not sufficient to prove that this is another habitat. It may have been introduced into the neighbourhood by an amateur, or some bird may have brought the seed.

The plant is very abundant throughout the Western part of France, and extends far into the interior, as near Paris. It also grows in the vicinity of Cherbourg, Caen, and other places near the Channel.* Nyman † also states, that it is recorded as growing in Asturias, Gallicia, and Andalusia in Spain, and also in Portugal. ‡

Lecoq,§ a French writer on the Botanical Geography of Europe, remarks that "Its range is rather limited. On the South it is in France and Spain. On the North it rises in France as far as the Isle of Manche, and reaches even to England. It is in the West" (of France) "and extends from England to the coast of Portugal."

"Limits of the extent of the Species."

"South. Spain 39° "North. England 51°	Distribution in latitude 12°
"West. Portugal 11° (9°) " East. France 0° (2E)	Distribution in longitude 11°

In Kilmington Common it has at present a range of about a mile in length, and in no place more than a hundred yards in breadth. In some fields that have been recently cultivated, within the range of its usual haunt, the flower has appeared in great abundance on the newly turned up ground. A more precise description of its exact locality will not be given, as some naturalists are of a very grasping character, and instead of taking a few specimens, a case has occurred, where a basketful has been borne away by a single individual. We should be sorry to have the plant exterminated, and we take this opportunity of warning our country friends not to give too great publicity to the subject. The angler does not disclose to every individual the spot where he would be likely to get most sport, and he would be particularly careful not to do so if he found a person of a greedy and poaching propensity. It was feared that cultivation would rob us of our jewel. This has not happened. Still the precious gem remains. Let us now so watch over the Flower of the Axe, that while we will show to the student of nature how it still exists, we will not give to the invading foe the opportunity of tearing it up root and branch.

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* See the French Floras of Grenier and Godson, Lloyd and Brebisson.

† Sylloge Floræ Europeæ.

‡ The Author is indebted to C. Cardale Babington, Esq., M.A., F.L.S., F.G.S., Professor of Botany in the University of Cambridge, for this information as to the foreign habitats of the Lobelia, and for many other interesting particulars.

§ Lecoq, Etudes sur la Geographie Botanique de l' Europe, vol. 7, page 293.

Our Lobelia * very much resembles that which is found in gardens. The corolla or flower is divided into two parts or lips. The upper lip is again divided into two, and the lower lip into three parts. The flower is of a violet hue. The stem is nearly upright. The lower leaves are inversely egg-shaped or oblong, and slightly toothed. The upper leaves are lance-shaped and serrate. The flowers are in a loose cluster, and appear in the months of July, August, and the early part of September. Why this plant should have fixed on this particular spot, and be found wild in no other place in Scotland, England, or Wales, is indeed a mystery. Many plants are considered to be naturalized and only an escape from gardens. No botanist has ever doubted that this is a thoroughly wild plant, and that no cultivation was ever the cause of its visiting these regions. There are many places in England, and in Devonshire, where the soil and climate seem to be precisely similar, and yet it has never been discovered in any of these places. There is no unvarying rule for nature's productions.

With regard to the different species of the animal and vegetable tribes, it is sometimes extremely difficult to account for their locality. In the bleakest regions we occasionally meet with tropical plants, and in the torrid zone we light on fruits and flowers alone to be expected in our colder clime. There is, however, sufficient regularity to reward and to amuse the student of natural history.

* See Plate IV.

——Not a flower
But shows some touch in freckle, streak, or stain
Of His unrivalled pencil. He inspires
Their balmy odours and imparts their hues,
And bathes their eyes with nectar and includes
In grains as countless as the sea-side sand
The forms which sprinkle all the earth.
Happy who walks with Him! Whom what he finds
Of flavour or of scent in fruit or flower,
Or what he views of beautiful or grand
In nature—from the broad majestic oak
To the green blade that twinkles in the sun—
Prompts with the resemblance of a present God.—*Cowper.*

Lobelia Urens, now found only in a small portion of our district, may in olden times have flourished in other places in the South of England. Even now its seeds may lie buried, and if the seeds should be moved up by the plough, or by the spade, the plant may exhibit itself in some similar situation. Most extraordinary is the suspension of vegetable life. In ploughing an inch or two deeper than usual, the husbandman gives vitality to the wild mustard (commonly called charlock) whose seed may have been below the region of vegetation for many a year, and, behold, his field of corn is almost choked by the luxuriant yellow crop! Grains have been found in the Egyptian mummies where they had remained for 2000 years, and, wonderful to say, when sown in the ground have vegetated and come to perfect plants. The wild flowers, and Ferns, and sedges of the bogs, die when the ground is thoroughly drained. Let the drains be choked, and the dry land become a marsh again, and then the rushes and carnation grass, and all the wet plants appear. How comes this to pass? Not because new seed is deposited, for all the ground around may be in excellent cultivation, and altogether destitute of any such plant. There has been a suspension of vegetable life in the buried seed, and when the soil is in a suitable condition, then does germination and fructification arise. It is not impossible that the fresh earth, cast up in working the railway, may add some fresh flower to the neighbourhood, and a vegetable that existed in the days of Canute may reappear in the vale of the Axe.

It may be interesting to our classical readers if we furnish them with Hudson's description of our flower, as it was originally written in the Latin language. It will be observed that it is in accordance with the liberal translation with which we have furnished our readers. This is an exact copy taken from the work in the library of the British Museum.

Gulielmi Hudsoni, R.S.S. et Pharm. Lond.

Flora Anglica, &c., Tom. 2. 8°. Londini. 1778.

Præf. iii. Numeri I III II tempus florendi indicant viz. Jan. Feb. Mart. &c.

Hanc occasionem lubens amplector gratias agendi amicis, qui mihi plantas pro eorum benevolentiâ suppeditarunt, inter quos nominandi sunt * Domini Alchorne &c.

Tom. II. P. 377. Lobelia.

Cal. quinquefidus. Cor. monopetala, irregularis.
Caps. infera bis. trilocularis.

1. Lobelia Dortmanna.

Page 378.

2. Lobelia Urens. Lobelia caule erectiusculo, foliis inferioribus subrotundis crenatis, superioribus lanceolatis serratis, floribus racemosis. Sp. pl. (Species plantarum) 1321.

Rapunculus galeatus blesensis s. soloniensis, flore violaceo minimo. (1)Hist. Ox. II 467 t. 5 f. 56.

Rapuntium urens soloniense. (2)Hort. R bl. 300. (3)Bocc. sic. 20 t. 11. (4) R. Hist. 746. (5) Monn. obs. cxxxj.

Draba flore cæruleo galateo. (6) B. pin. 110. pr. 53.

Anglis, stinking Lobelia. (Among the errata P. 378, for stinking, r. stinging). Habitat in pratis montosis. Supra Shute common inter Axminster et Honiton. D. Newbery. VII. VIII.

Explanations of abbreviations as given by Hudson.

(3) Bocc. sic. Pauli Boccone Plantarum Rariorum Siciliæ Icones et Descriptiones. Oxon, 1674. 4to.

(6) B. pin. Caspari Bauhini Prodromus et Pinnax Theatri Botaniei. Basil, 1671. 4to.

Explanation of the other abbreviations.

(1) Plantarum Historia Universalis. Auctore Roberto Morison. Oxon, 1680. Pars. II. p. 467. t. 5. f. 56.

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* This sentence is inserted to show that D. Newbery, means Dominus, Mr. Newbery, and is not the Christian name, as already mentioned in page 115.

(2) Hortus Regius Blesensis. p. 300. Morison. A.D. 1669.

(4) Ray. Historia Plantarum. p. 746. A.D. 1686 or 1688.

(5) La Meridienne de l' Observatoire Royal de Paris. &c. Par M. Cassini Thury de l' Académie Royal des Sciences. Avec des Observations d' Histoire Naturelle, faites dans les Provinces traversêes par la Meridienne par M. le Monnier de la même Académie Docteur en Medecine. 4to. Paris. 1744.

A short account is subjoined of three botanists', eminent in their day, who have been alluded to by Hudson in his description of the Lobelia.

Boccone Paul Silvius. He was born of a noble family at Palermo in 1633, where he died in 1704. He published a small number of works, and has left others in manuscript. He had in his youth a passion for the study of natural history in general, and of botany in particular. He travelled through the different countries of Europe to satisfy this taste. In Paris he made the acquaintance of the Abbé Bourdelot. In 1674, he published at Amsterdam his "Researches and Observations on Natural History." * There are in this little work some very curious matters. Having connected himself while in London with Hatton, Sherard, and Morison, the last named induced him to publish a work on the plants which he had observed, and took charge of its revision and printing. This work appeared at Oxford under the title of "Drawings and Descriptions of the Rarer Plants of Sicily, Malta, France, and Italy," in 1674, 4to. with 52 plates. He published afterwards at Venice by the advice of Sherard, another work more extensive, under the title, "A museum of the Rare Plants of Sicily, &c," † Eight other works are named. He was appointed Botanist to the great Duke of Tuscany, but in 1682 became a monk under the name of Sylvius. ‡

Bauhin, Gaspard. In Basle, famed for its learned University, was the subject of this article born and educated. After finishing his college education, he visited several parts of Europe that he might gain an insight into its vegetable productions, which in those days were so important a constituent of medicine. On his return to his native town, he

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* Recherches et Observations d'Historie naturelle.

† Museo di plante rare della Sicilia, &c. Venice, 1697.

‡ See Biographie Universelle. Paris, 1811.

was in high repute as a most learned man, and celebrated naturalist. The greatest honours were bestowed upon him, and he was appointed professor of Greek, of Anatomy, and Botany. Though he wrote several Medical Treatises, yet he is most distinguished for his Botanical publications. The work quoted by Hudson, which came from the press in 1623 and 1671, was a complete key to the knowledge of the day. It was embellished with descriptions and figures of new plants, and with collections of the names given by the writers who preceded him His zeal, learning, and good sense, aided by unwearied industry, contributed greatly to the advance of Botany, and was exceeded by none except Linnæus in this department of the science. His book was for years considered a standard work, and was constantly resorted to by those who wished to become acquainted with the characters and habits of the various portions of the vegetable world. Forty years were devoted to the completion of this publication, and if we wish to ascertain the name given by any old writer to a plant, we have only to consult Gaspard Bauhin, and there it will be easily discovered. The chief blemish in his work is a want of order and arrangement. He seems to have been reproved by our countryman Morison, for placing the Lobelia under a wrong genus. He died at Basle in 1624.

Monnier, Louis William. This writer is less known than the others whose works are quoted by Hudson. It seems that Louis XV. was anxious to have a correct map of France. To accomplish this, M. Cassini de Thury made a Trigonometrical survey of that kingdom, and in 1744, published an account of it under the title of "The Meridian of the Observatory of Paris, verified throughout the whole extent of the kingdom by new observations, &c." The map was not finished by him, but by his son. That the publication might be more complete and more interesting, M. le Monnier, a celebrated physician and naturalist, inserted what is in fact an Appendix to the main treatise, "Observations on the Natural History of the Provinces in the South of France." He was a member of the Royal Academy, and made these observations in the year 1739. In the page which is marked cxxxj,[*] with small Roman numerals, he calls the Lobelia the stinging Rapuntium of Sologne, [†] and quotes Morison's Royal Garden of Blois, as his authority for the name. "This plant" he remarks, "is common enough in all" (the province of) "Berry; its leaves are much larger and more succulent in Randonnay, than in the moist meadows of Sologne, but it is not on that account the less acrid." In 1738, he was attached to the Infirmary of St. Germaine enlaye. Circumstances and his position developed his taste for Botany, and to this science he rendered great service. Called to the Court, he was appointed Professor of Botany. He was made chief Physician to the Royal Family, and latterly also to the King. Passionately fond as he was of studying nature's fair flowers, and shrubs, and trees, he had an additional impulse given to the natural bent of his mind by being employed in superintending the laying out of the lovely gardens of Trianon, and also the gardens of Elizabeth, sister of Louis XVI. at Montreuil, near Versailles. Various other works did this gifted man publish besides his "Observations on Natural History." He lived to behold the fearful Revolution, and the anarchy and bloodshed consequent thereon, and the untimely end of his patron Louis XVI. for he died in 1799.

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[*] There is another page in the book marked 131.

[†] Rapuntium urens soloniense. Mor. H. R. Blaes. Cette plante est assez commune dans tout le Berry; ses fuilles sont beaucoup plus grandese et plus succulentes dans le Rendonnay que dans les pres humides de la Sologne; mais elle n'en pas pour cela moins brulante.

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The figures denote the page. C stands for common. F for fern or ferns. var. for Variety.

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T. Young, Printer, Fore Street, Chard.